



FUJIX-8
VIDEO
SYSTEM

8

REPAIR MANUAL

AE/UK Models

FUJIX-8 CAMCORDER

FF60WIDE

WARNING

Battery may explode if mistreated. Do not recharge, disassemble, or dispose of in a fire.

ADVARSEL!

Lithiumbatteri-Ekspløsningsfare ved fejlagtig hændtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Lithiumbatteri-Ekspløsningsfare.
Ved udskiftning benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splasher and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED LINE WITH MARK Δ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH FUJI PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY FUJI PHOTO FILM CO., LTD.

Contents

1. Specifications	5
2. Controls and Parts Locations	6
2-1. EXTERNAL VIEWS	6
2-2. INTERNAL VIEWS	9
3. Disassembly	10
3-1. Disassembly of Cassette Lid Assembly ...	10
3-2. Disassembly of F Panel Block Assembly .	10
3-3. Disassembly of Cabinet (L) Assembly	11
3-4. Disassembly of Main Boards and Camera Assembly	12
3-5. Disassembly of Operation Switch Block (CF-0)	13
3-6. Disassembly of DC-DC Converter (DD-30 Board)	13
3-7. Disassembly of JK-66 Board	14
3-8. Disassembly of Operation Switch Block (FK-0)	14
3-9. Disassembly of Camera Block	15
3-10. Disassembly of Lens Assembly	15
3-11. Disassembly of MD Frame	16
3-12. Disassembly of VS-72 Board	16
3-13. Disassembly of EVF Assembly	17
3-14. Disassembly of Cassette Compartment Hoder Block Assembly	18
4. Camera Adjustments	19
4-1. Pre-Adjustment preparations (Camera Block)	19
4-1-1. List of Servicing Jigs	19
4-1-2. Preparations	20
4-1-3. Precautions	21
4-1-4. Adjustment Remote Controller	22
4-1-5. Check Point Array	27
4-1-6. AF Microprocessor Data Reading Jig	27
4-1-7. Data Processing	28
4-2. Camera System Adjustments	29
4-2-1. Flange Back Adjustment	29
4-2-2. Wide Converter Focus Adjustment	30
4-2-3. Power Supply Check (VC-98P Board)	30
4-2-4. EVR Initial Settings	31
4-2-5. 28MHz Local Oscillation Asjustment	31
4-2-6. PG CONT and Vsub Adjustment	32
4-2-7. Hall Adjustment (LD-43 Board)	32
4-2-8. Iris Adjustment (VC-98P Board)	33
4-2-9. Hall In/Out Adjustment (VC-98P Board) ...	33
4-2-10. AGC Adjustment (VC-98P Board)	33
4-2-11. Y Signal Matrix Adjustment (VC-98P Board)	34
4-2-12. Chroma Signal Matrix Adjustment (1) (VC-98P Board)	34
4-2-13. Chroma Signal Matrix Adjustment (2) (VC-98P Board)	35
4-2-14. YH Level Adjustment (VC-98P Board)	35
4-2-15. Sync Level Adjustment (VC-98P Board) .	35
4-2-16. Setup Adjustment (VC-98P Board)	36
4-2-17. White Clip Adjustment (VC-98P Board) ..	36
4-2-18. Y Level Adjustment (VC-98P Board)	37
4-2-19. Max. Gain Adjustment (VC-98P Board) ..	37
4-2-20. Aperture Adjustment (VC-98P Board)	38
4-2-21. Chroma Level Adjustment (VC-98P Board)	38
4-2-22. Burst Phase Adjustment (Method Using Vectorscope)	39
4-2-23. Burst Phase Adjustment (VC-98P Board) (Method Using Oscilloscope)	39
4-2-24. Burst Level Adjustment (VC-98P Board) .	40
4-2-25. Indoor White Balance Adjustment (Method Using Vectorscope)	40
4-2-26. Indoor White Balance Adjustment (Method Using Oscilloscope) (VC-98P Board)	41
4-2-27. Color Reproduction Adjustment (Method Using Vectorscope)	41
4-2-28. Color Reproduction Adjustment (Method Using Oscilloscope)	42
4-2-29. Auto-White Balance Adjustment	43
4-2-30. Auto-White Balance Check (VC-98P Board)	47
4-2-31. Focus Motor Speed Adjustment (VC-98P Board)	48
4-2-32. Macro Area Adjustment (VC-98P Board) .	48
4-2-33. Auto-Focus Adjustment (VC-98P Board) .	49
4-2-34. Auto-Focus Check	49
4-2-35. Power Zoom Speed Adjustment	50
4-3. CAMERA REC SYSTEM ADJUSTMENTS ..	50
4-3-1. VCO Adjustment (VC-98P Board)	50
4-3-2. Chroma Input Level Adjustment (VC-98P Board)	50
4-3-3. Recording Chroma RF Level Adjustment (VC-98P Board)	51
4-3-4. Y FM Carrier Frequency Adjustment (VC-98P Board)	51
4-3-5. Y FM Deviation Adjustment (VC-98P Board)	51
4-3-6. REC Y Level Adjustment (VC-98P Board) .	52
4-4. DIGITAL TITLER SYSTEM ADJUSTMENTS ..	52
4-4-1. Titler PLL Adjustment (TI-37P Board).....	52
4-4-2. Character Generator fo Adjustment (TI-37P Board)	52
4-4-3. Title A/D Level Adjustment	53
4-4-4. Title Y Level Adjustment (VC-98P Board) .	53
4-5. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS	54
4-5-1. Horizontal Tilt Adjustment	54
4-5-2. Centering Adjustment	54
4-5-3. Focus Adjustment	54
4-5-4. Aberration Adjustment	55
4-5-5. Horizontal Oscillation Frequency Adjustment (VF-40P Board)	55
4-5-6. Horizontal Amplitude Adjustment (VF-40P Board)	55
4-5-7. Vertical Amplitude Adjustment (VF-40P Board)	56
4-5-8. Brightness, Contrast Adjustments (VF-40P Board)	56
4-5-9. Horizontal Amplitude, Vertical Amplitude and Focus Checks	56

4-6. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS	57
VC-98P BOARD	57
LD-43 BOARD	57
TI-37P BOARD	57
VF-40P BOARD	57
5. Mechanical Adjustment	58
5-1. OPERATING WITH THE CASSETTE COMPARTMENT ASSEMBLY REMOVED	58
5-2. TAPE PATH ADJUSTMENT	59
6. Video Block Adjustments	60
6-1. PRE-ADJUSTMENT PREPARATIONS (VIDEO BLOCK)	60
6-1-1. Equipment to be Used	60
6-1-2. Connection of Equipment	60
6-1-3. Note on Adjustments	61
6-1-4. Set-up for Adjustment	61
6-1-5. Alignment Tapes	62
6-1-6. I/O Level and Impedance	62
6-1-7. Service Modes	63
6-2. POWER SUPPLY BLOCK CHECKS	64
6-2-1. Power Supply Check (VS-72 Board)	64
6-3. SYSTEM CONTROL ADJUSTMENTS	65
6-3-1. Battery Down Adjustment (DD-30 Board)	65
6-3-2. System Clock Adjustment (VC-98P Board)	65
6-4. SERVO SYSTEM ADJUSTMENTS	66
6-4-1. Capstan FG Frequency Check (VS-72 Board)	66
6-4-2. Capstan FG Offset Adjustment (VS-72 Board)	66
6-4-3. Drum Phase Lock Check (VS-72 Board)	66
6-4-4. Switching Position Adjustment (VS-72 Board)	67
6-5. VIDEO BLOCK ADJUSTMENTS	67
6-5-1. Playback Frequency Characteristics Adjustment (VS-72 Board)	68
6-5-2. Flying Erase Check (VS-72 Board)	68
6-5-3. Crystal Oscillator fo Checking (VS-72 Board)	68
6-5-4. Y/C Separation Adjustment (VS-72 Board)	69
6-5-5. IR2 Adjustment (VS-72 Board)	69
6-5-6. SYNC AGC Adjustment (VS-72 Board)	69
6-5-7. Emphasis Input Level Adjustment (VS-72 Board)	69
6-5-8. PB Y Level 1 Adjustment (VS-72 Board) ..	70
6-5-9. PB Y Level 2 Adjustment (VS-72 Board) ..	70
6-5-10. Y FM Carrier Frequency Adjustment (VS-72 Board)	70
6-5-11. Y FM Deviation Adjustment (VS-72 Board)	71
6-5-12. Chroma Emphasis fo Adjustment (VS-72 Board)	71
6-5-13. REC C RF Level Adjustment (VS-72 Board)	72
6-5-14. REC Y Level Adjustment (VS-72 Board)	72
6-5-15. REC C Current Adjustment (VS-72 Board) ..	72
6-5-16. REC ATF Current Check (VS-72 Board) ..	73
6-5-17. Feedback Chroma Adjustment (PD-18P Board)	73
6-5-18. Quasi Burst Phase Adjustment (VS-72 Board)	74
6-5-19. Delay Burst Phase Adjustment (VS-72 Board)	74
6-6. AUDIO SYSTEM ADJUSTMENT	75
6-6-1. AFM Carrier Frequency Adjustment (AU-95P Board)	75
6-6-2. REC AFM Carrier Level Check (AU-95P Boards)	75
6-6-3. AFM Deviation Adjustment (AU-95P Board) ..	76
6-6-4. E-E Output Level Check	76
6-6-5. Overall Level Characteristics Check	76
6-6-6. Overall Frequency Characteristics Check ...	76
6-6-7. Overall Distortion Check	76
6-6-8. Overall Noise Level Check	76
6-7. ARRANGEMENT DIAGRAMS FOR ADJUSTMENT PARTS	77
VC-98P BOARD	77
VS-72 BOARD	77
PD-18P BOARD	78
AU-95P BOARD	78
LD-43 BOARD	78
TI-37P BOARD	78

1. Specifications

System

Video recording system	Four rotary heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL color, CCIR standards
Usable tape	8 mm video format tape
Tape speed	SP mode: Approx. 20.051mm/sec LP mode: Approx. 10.058mm/sec
Recording/playback time	SP mode: 1 hour 30 minutes (P5-90) LP mode: 3 hours (P5-90)
Fast forward/rewind time	Approx. 8 minutes 30 sec (P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (black and white)
Lens	Combined 6xpower zoom lens f=7 - 42 mm, F2.0 with macro, and wide-conversion lens 0.7 x f=4.9 mm
Shutter speed (Electrical shutter)	1/50 (normal), 1/120, 1/250, 1/1000, 1/2000, 1/4000 sec
Auto focus system	TTL
Minimum illumination	7 lux (F 2.0)
Illumination range	7 lux - 100,000 lux (0.7 - 9,290 footcandles)
Recommended illumination	More than 150 lux (14 footcandles)
Aperture correction	Automatic
Title memory	1 page
Other functions	Recording: Interval recording, Self Timer recording Playback: Picture search, Skip search, Single frame playback, Slow motion playback Edit: Edit search

Input and output connector

Video output	Phono jack (1) 1 V _{P-P} , 75 ohms unbalanced sync negative
Audio output	Phone jack (1) -7.5 dBs, (at output impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT	Special minijack, 5 V DC
REMOTE jack	Stereo mini-minijack
MIC jack	Minijack, -66dBs, low impedance with 2.5 — 3 V DC output, impedance 6.8 kilohms

General

Power requirements	On battery mounting surface 6.0 V (battery pack) 7.5 V (AC power adaptor) 9.0 V (alkaline batteries)
Power consumption	4.8 W (camera recording) including the viewfinder
Installation	Vertically, Horizontally
Operating temperature	0°C to +40°C
Storage temperature	-20°C to +60°C
Dimensions	Approx. 108 x 106 x 184 mm (w/h/d)
Weight	Approx. 750 g excluding the battery, cassette and grip
Microphone	Electret condenser microphone
Supplied accessories (1 pc. each)	<ul style="list-style-type: none"> • Battery pack NP-55 • AC power adaptor AC-V30 • Lithium battery CR2025 • RFU adaptor RFU-90EF or RFU-89EA With the RFU-98EA, an aerial selector and a screwdriver are supplied. <ul style="list-style-type: none"> • Single action multi grip G806-T • Remote commander RM805-T • Shoulder strap • Jack cover • Battery R03 (Size AAA) (2 pcs.) • Owner's manual

Note

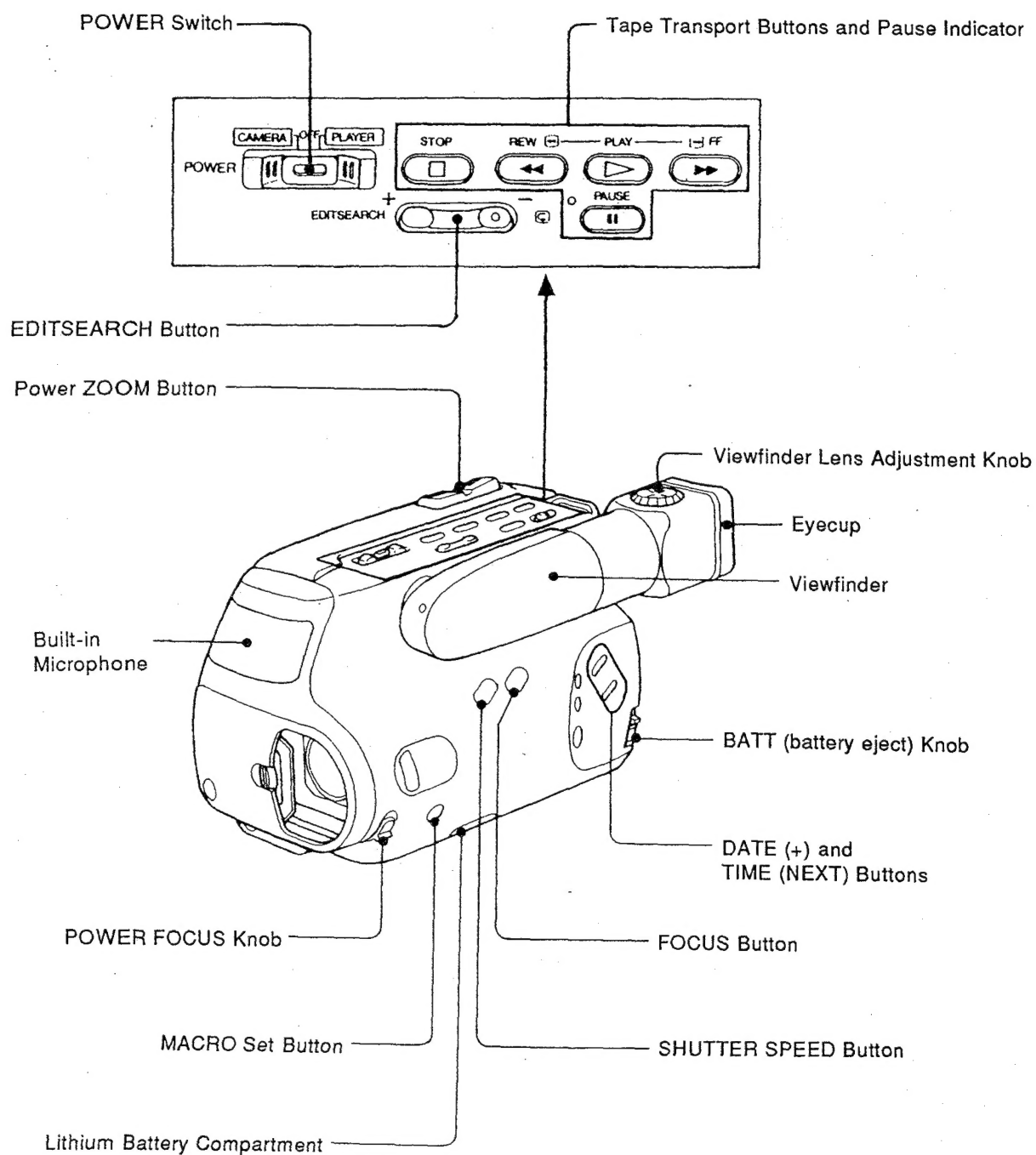
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

2 Controls and Parts Locations

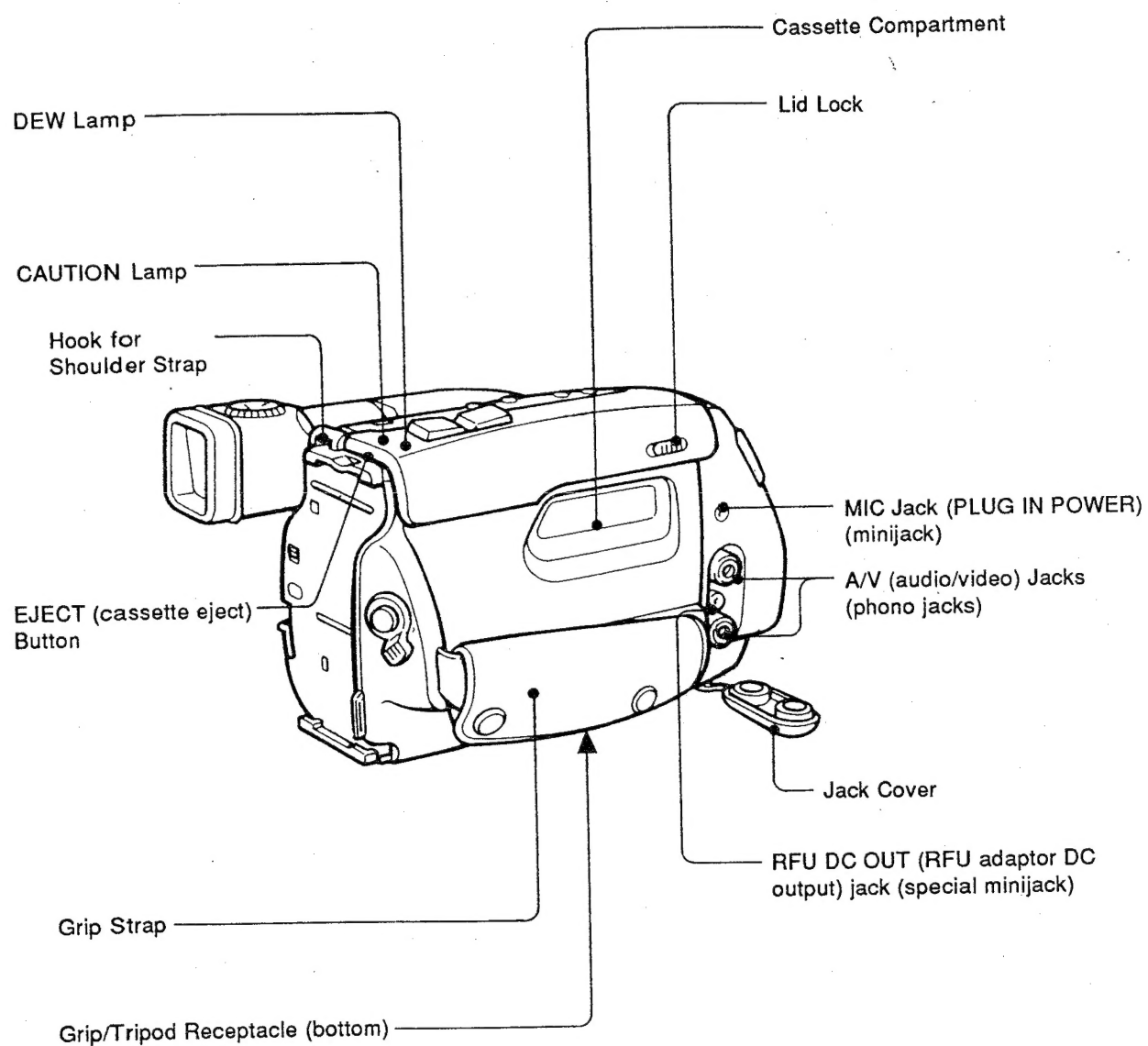
FF60WIDE REPAIR MANUAL

2. Controls and Parts Locations

2-1. EXTERNAL VIEWS

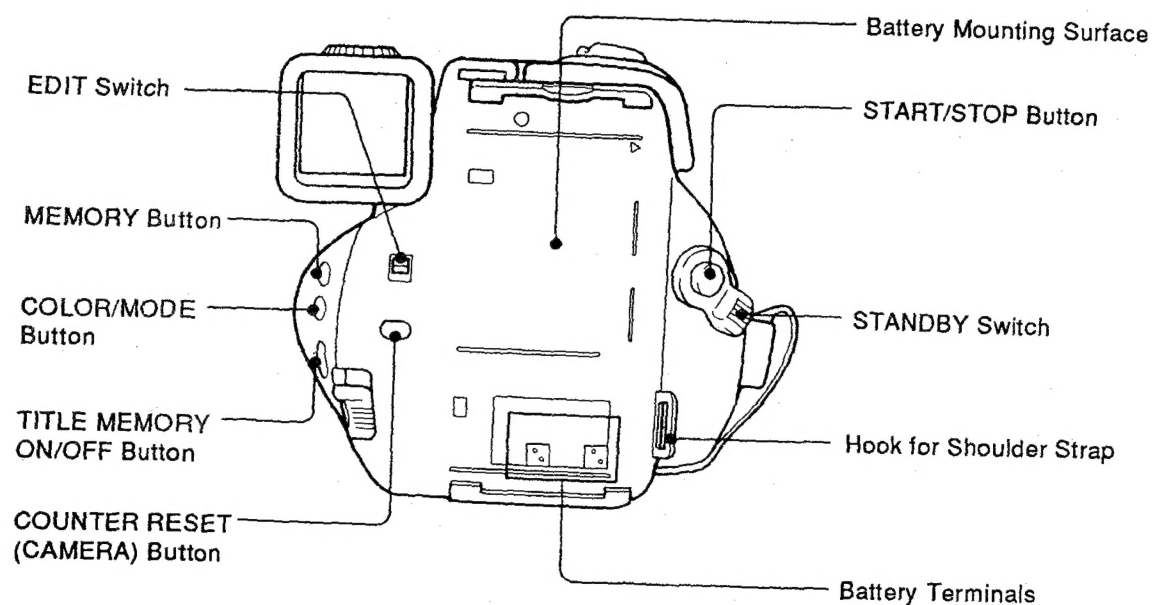
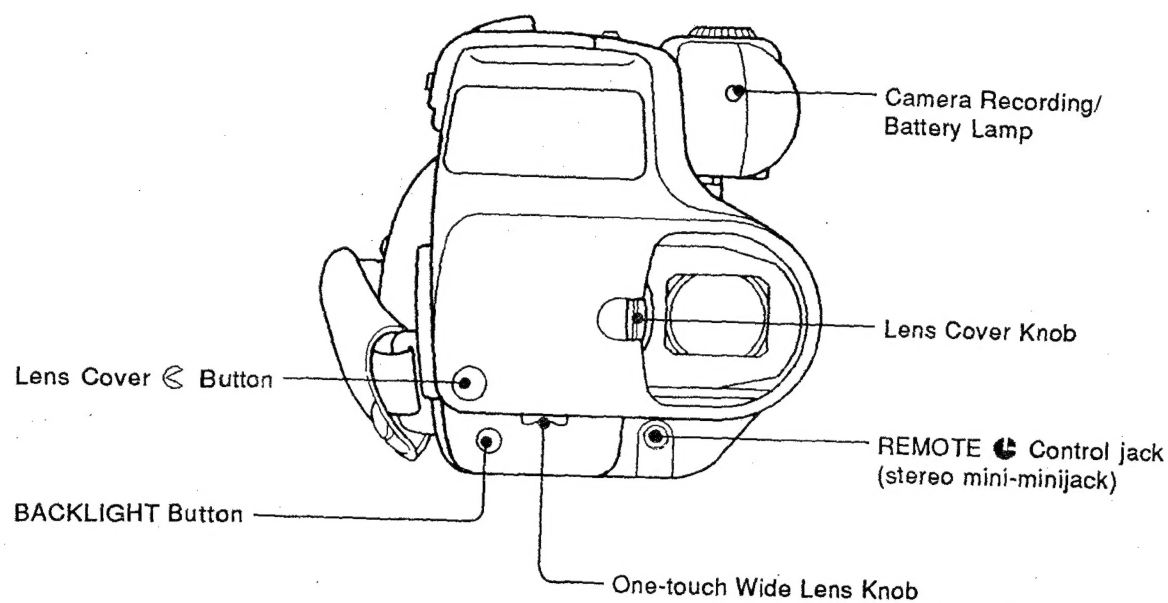


2 Controls and Parts Locations



2 Controls and Parts Locations

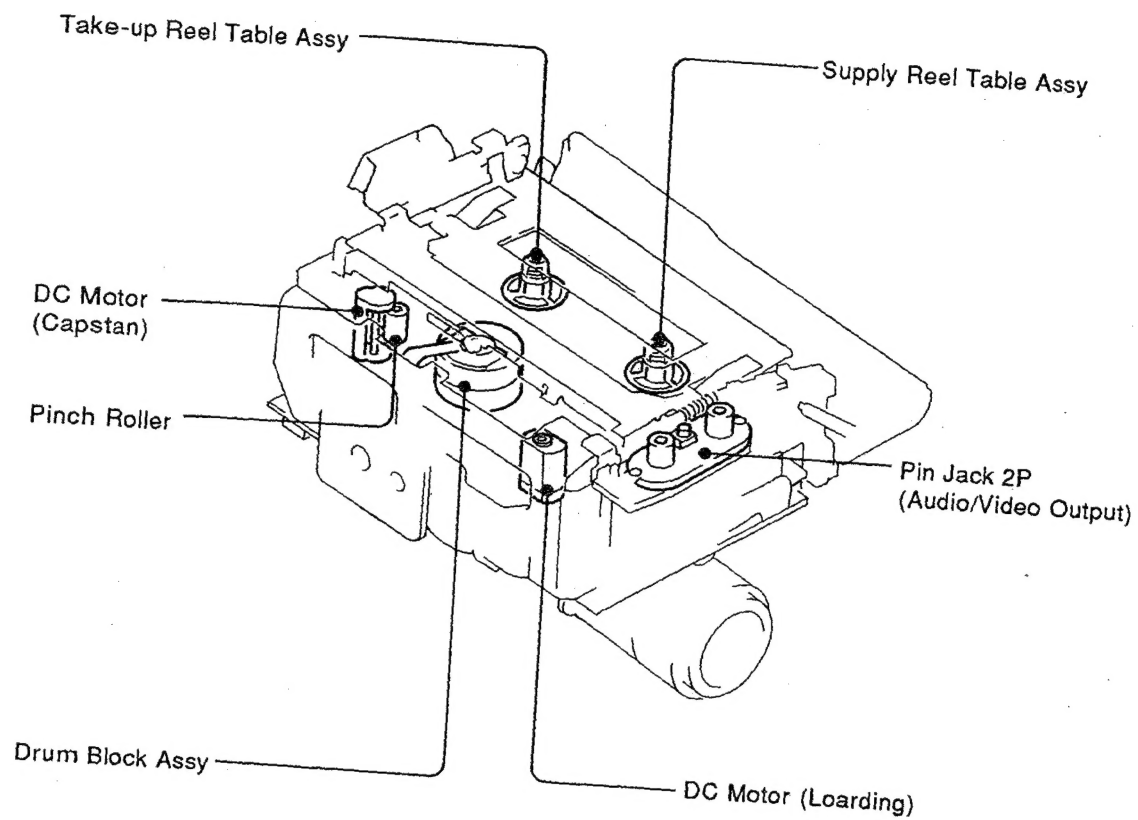
FF60WIDE REPAIR MANUAL



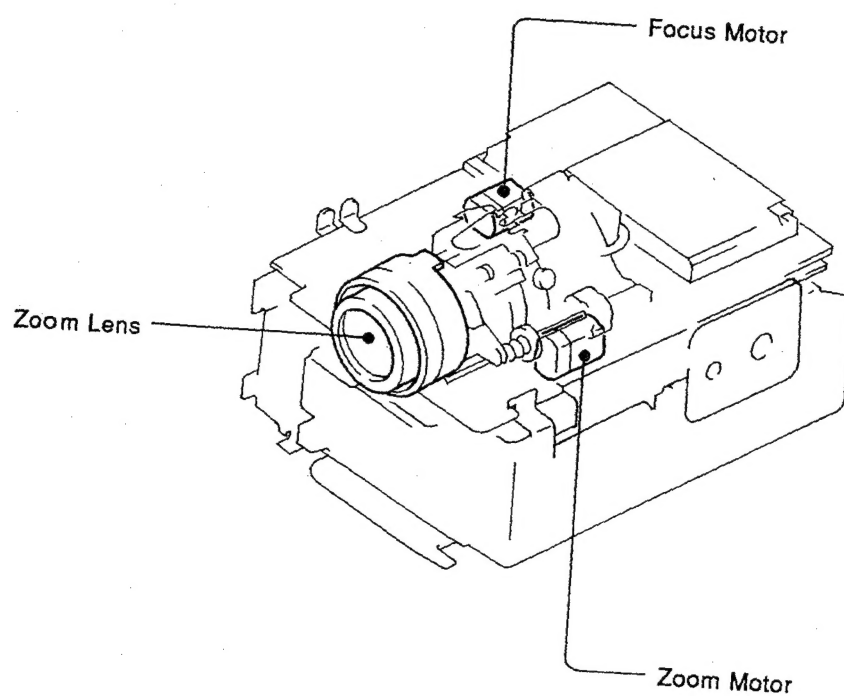
2 Controls and Parts Locations

2-2. INTERNAL VIEWS

[Right side]



[Left side]

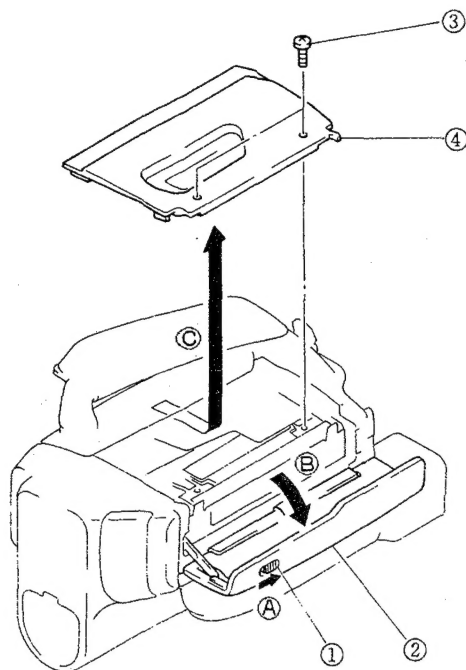


3 Disassembly

FF60WIDE REPAIR MANUAL

3. Disassembly

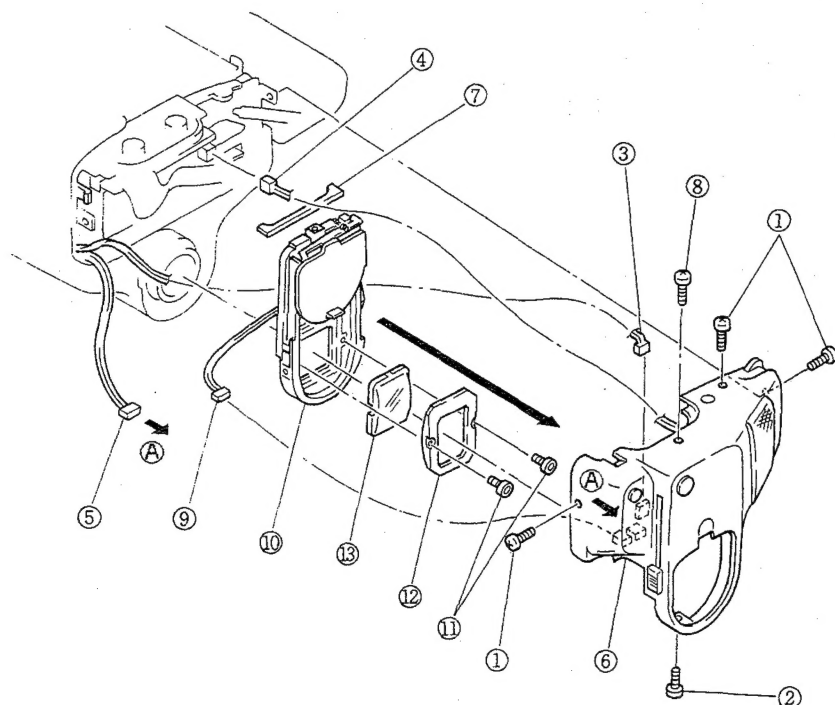
3-1. Disassembly of Cassette Lid Assembly



[Procedure]

- ① Push the Lock Knob in the direction of arrow A, and hold it.
- ② Open the Grid Lid in the direction of arrow B.
- ③ Remove two setscrews.
- ④ Remove the Cassette Lid Assembly in the direction of arrow C.

3-2. Disassembly of F Panel Block Assembly



[Procedure]

- ① Remove 3 screws.
- ② Remove a screw.
- ③ Disconnect the connector CN756 on the SW-178 Board.
- ④ Disconnect the connector CN402 on the AU-95P Board.
- ⑤ Disconnect the connector CN763 on the SW-178 Board.
- ⑥ Remove the F Panel Block Assembly.
- ⑦ Detach the Dust Cover from the F Panel Block Assembly.
- ⑧ Remove a screw.
- ⑨ Disconnect the connector CN762 on the SW-178 Board.
- ⑩ Detach the Wide Converter Assembly from the F Panel Block Assembly.
- ⑪ Remove 2 lock nuts.
- ⑫ Remove the Lens Frame.
- ⑬ Remove the Lens.

CAUTION 1:

Do not pull wires when disconnecting each connector. Because wires will be damaged.

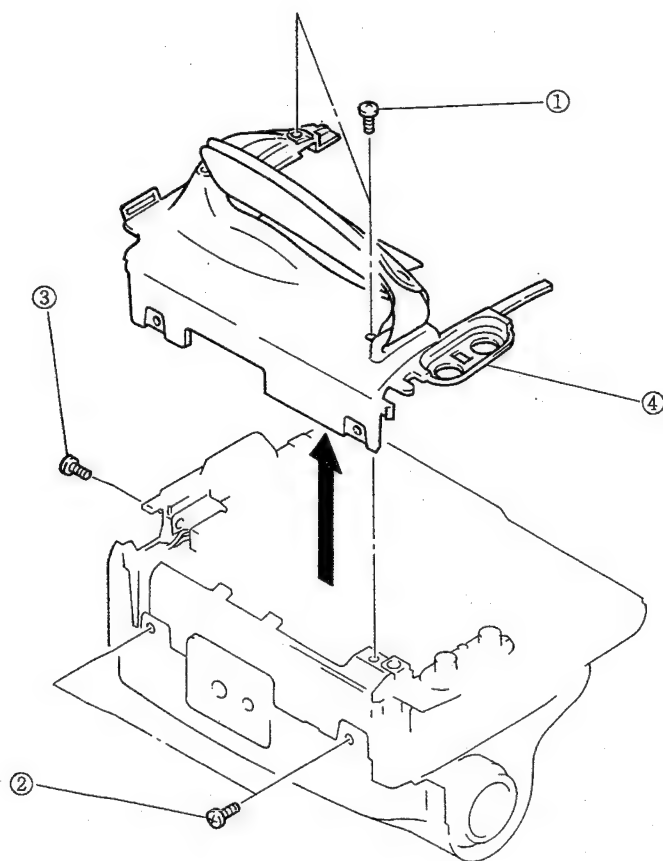
CAUTION 2:

When removing the Cabinet (R) Assy for repairing the Camera board or Video board, it is enough to proceed from ① through ⑥ above.

3-3. Disassembly of Cabinet (L) Assembly

[Procedure]

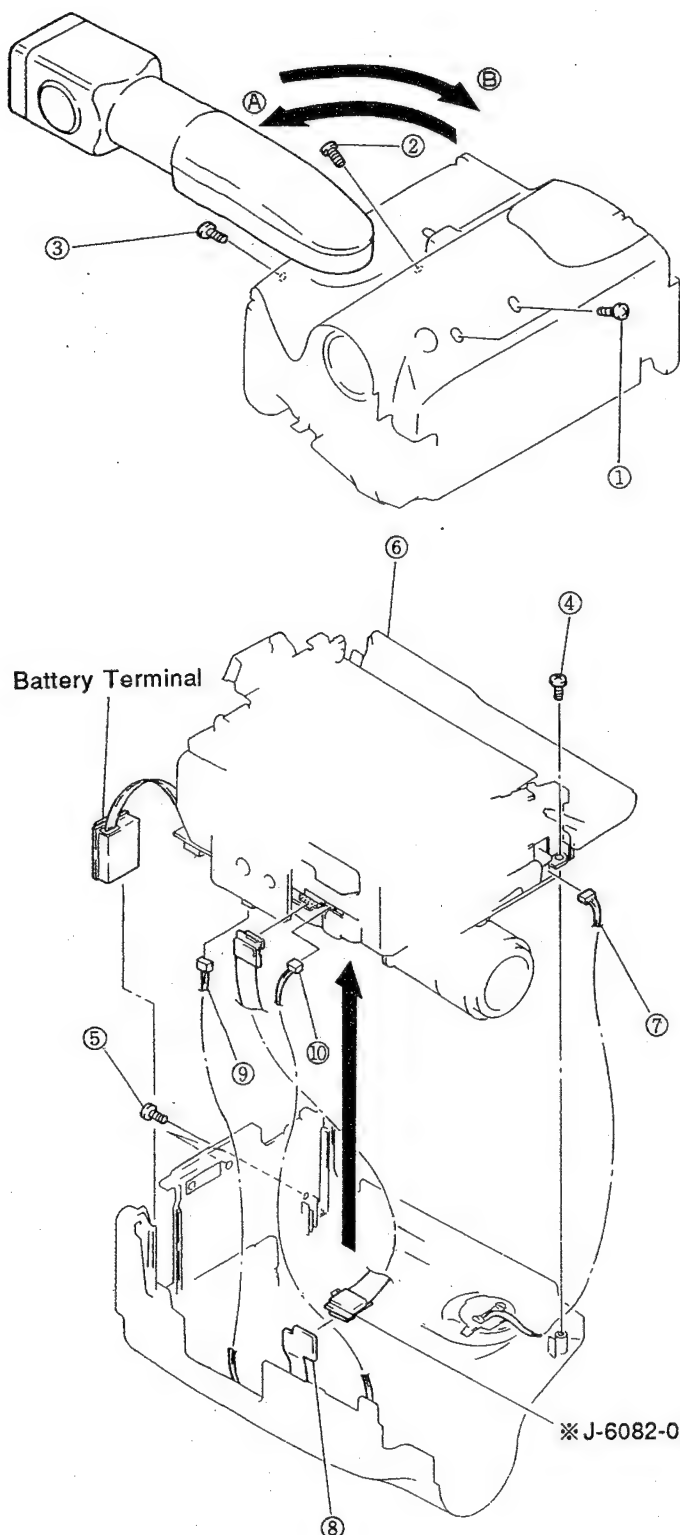
- ① Remove two screws.
- ② Remove two screws.
- ③ Remove a screw.
- ④ Remove the Cabinet (L) Assembly in the direction as an arrow.



3 Disassembly

FF60WIDE REPAIR MANUAL

3-4. Disassembly of Main Boards and Camera Assembly



[Procedure]

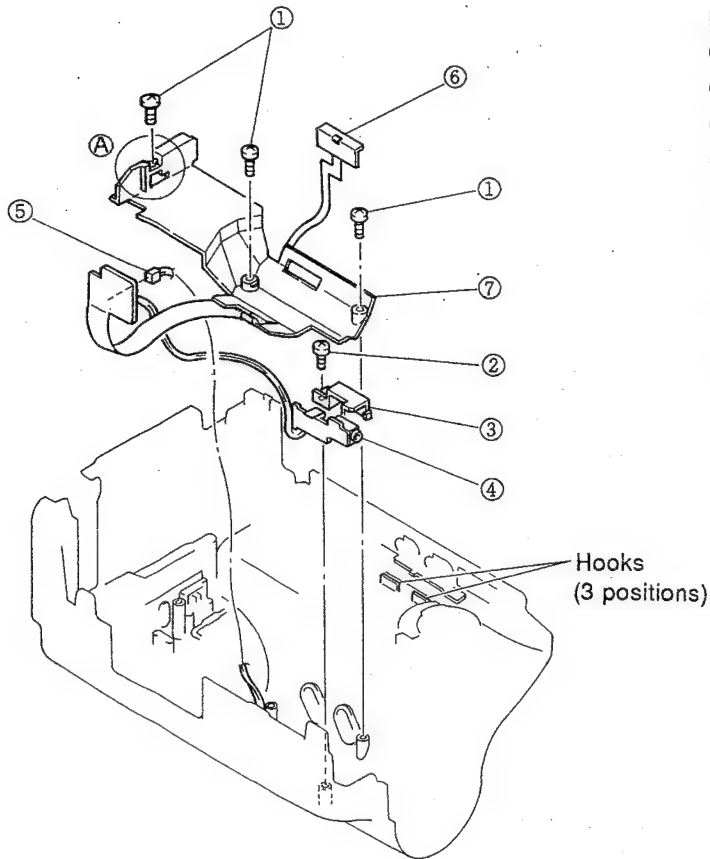
- ① Remove two screws.
(NOTE: They are put slantwise.)
- ② Rotate the Electrical Viewfinder in the direction of the arrow (A), then remove a screw.
- ③ Back the Electrical Viewfinder (as the arrow (B)), then remove a screw.
- ④ Remove a screw.
- ⑤ Remove two screws.
- ⑥ Lift up the Main Boards and Camera Assembly. In this state, disconnect following connectors.
- ⑦ Disconnect the connector CN205 on the VS-72 Board.
- ⑧ Disconnect the connector CN804 on the VC-98P Board.
- ⑨ Disconnect the connector CN708 on the LD-43 Board.
- ⑩ Disconnect the connector CN808 on the VC-98 Board.

CAUTION 1:

Do not pull wires when disconnecting each connector. Because wires will be damaged.

※ The VC-98P Board can function using this jig.

3-5. Disassembly of Operation Switch Block (CF-0)



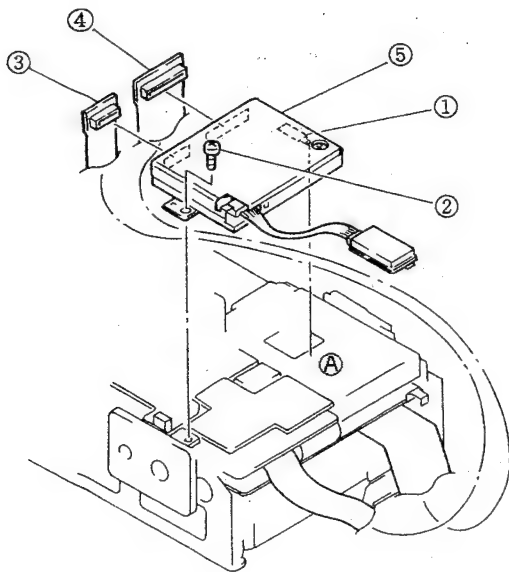
[Procedure]

- ① Remove three screws.
- ② Remove a screw.
- ③ Dismount the EL Holder.
- ④ Disassemble the EL-13P Board.
- ⑤ Disconnect the connector CN753.
- ⑥ Disassemble the CF-0 Search Block paying attention to three hooks.
- ⑦ Remove the Operation Switch Block (CF-0).

CAUTION:

When assembling the Operation Switch Block (CF-0), be sure that the Edit Switch Knob on the cabinet (R) block and the Slide Switch (S762) on the operation switch block (CF-0) are aligned. (Part A)

3-6. Disassembly of DC-DC Converter (DD-30 Board)



[Procedure]

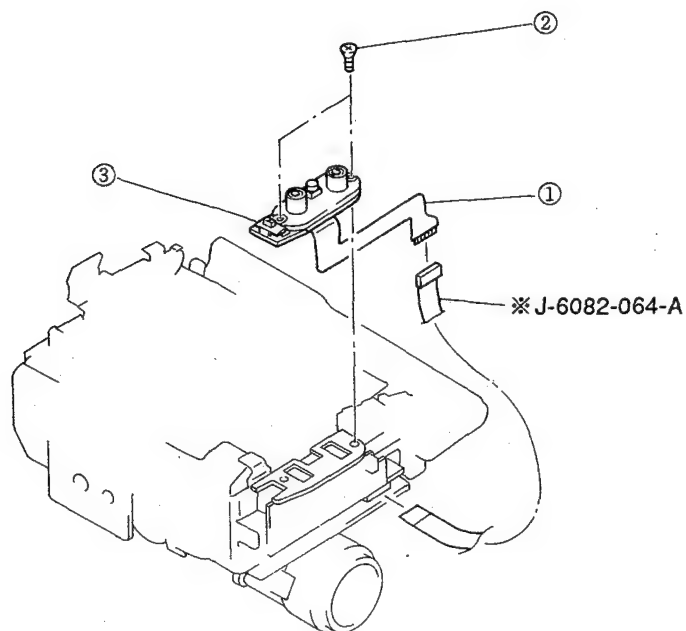
- ① Unsolder the part A.
- ② Remove a screw.
- ③ Disconnect the FP-331 Flexible Board.
- ④ Disconnect the FP-330 Flexible Board.
- ⑤ Remove the DC-DC Converter (DD-30 Board).

CAUTION:

When removing the DC-DC Converter (DD-30 Board), be careful not to damage the Flexible Board on the operation switch block (FK-0).

3 Disassembly

3-7. Disassembly of JK-66 Board

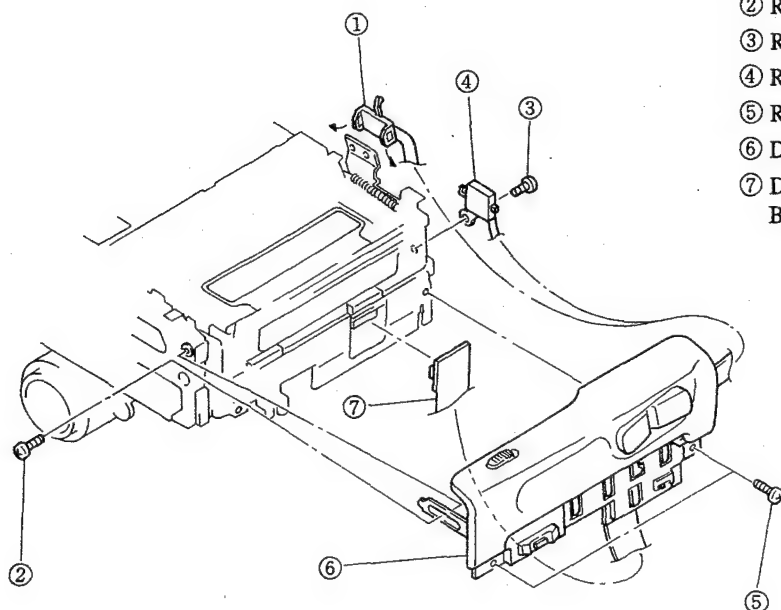


[Procedure]

- ① Disconnect the connector CN201 on the VS-72 Board.
- ② Remove two screws.
- ③ Dismount the JK-66 Board.

※ The VS-72 Board can function using this jig.

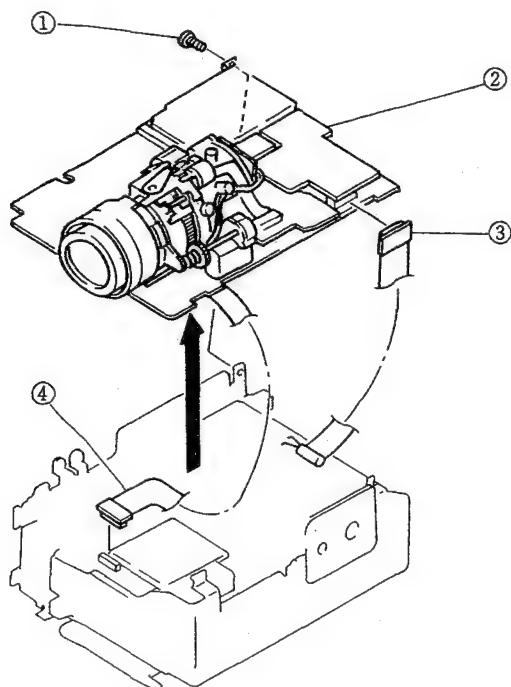
3-8. Disassembly of Operation Switch Block (FK-0)



[Procedure]

- ① Remove this part pulling two hooks sideward.
- ② Remove a screw.
- ③ Remove a screw.
- ④ Remove the Eject Switch.
- ⑤ Remove two screws.
- ⑥ Dismount the Operation Switch Block (FK-0).
- ⑦ Disconnect the connector CN603 on the VS-72 Board.

3-9. Disassembly of Camera Block

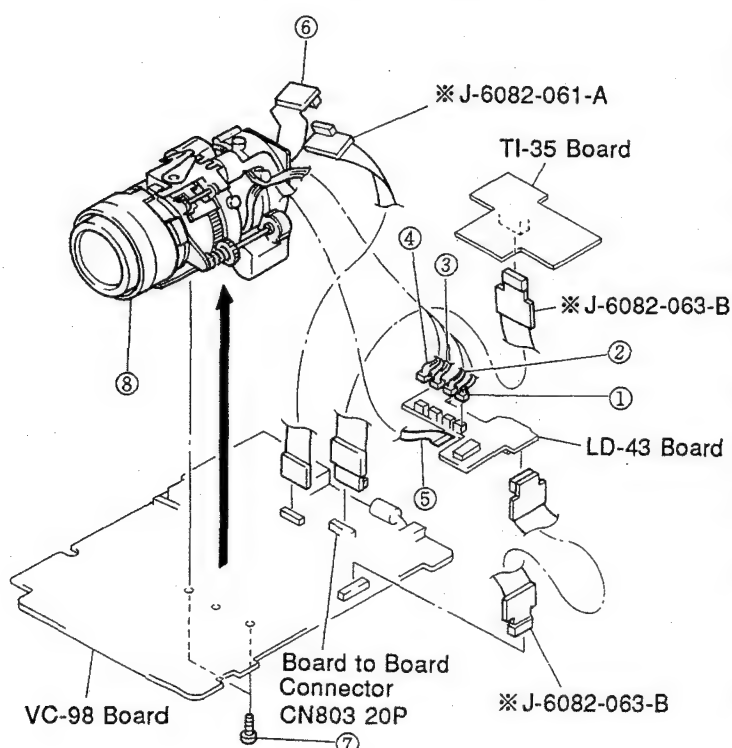
**[Procedure]**

- ① Remove a screw.
- ② Lift the Camera Block in the direction of arrow.
- ③ Disconnect the connector CN802 (FP-184 Flexible Board) on the VC-98P Board.
- ④ Disconnect the connector CN202 (FP-362 Flexible Board) on the VS-72 Board.

CAUTION:

When disconnecting each connector, do not damage flexible boards.

3-10. Disassembly of Lens Assembly

**[Procedure]**

- ① Disconnect the connector CN706 on the LD-43 Board.
- ② Disconnect the connector CN703 on the LD-43 Board.
- ③ Disconnect the connector CN704 on the LD-43 Board.
- ④ Disconnect the connector CN705 on the LD-43 Board.
- ⑤ Disconnect the connector CN702 on the LD-43 Board.
- ⑥ Disconnect the connector CN302 (FP-333 Flexible Board) on the VC-98P Board.
- ⑦ Remove two screws.
- ⑧ Dismount the Lens Assembly.

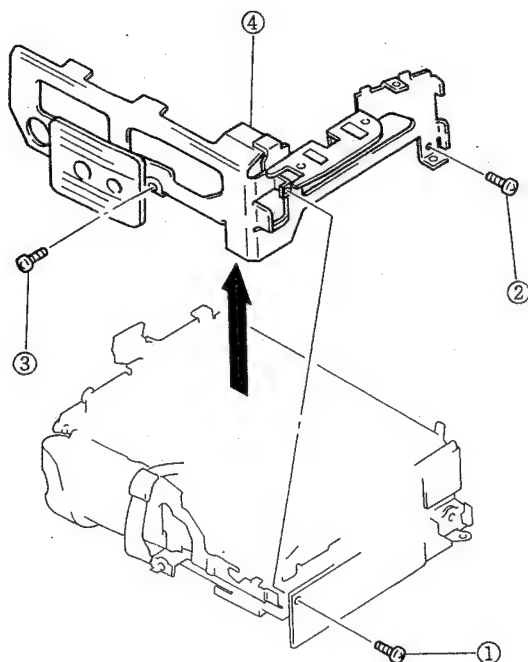
CAUTION:

When disconnecting each connector, do not damage flexible boards.

※ The VC-98P Board can function using this jig.

3 Disassembly

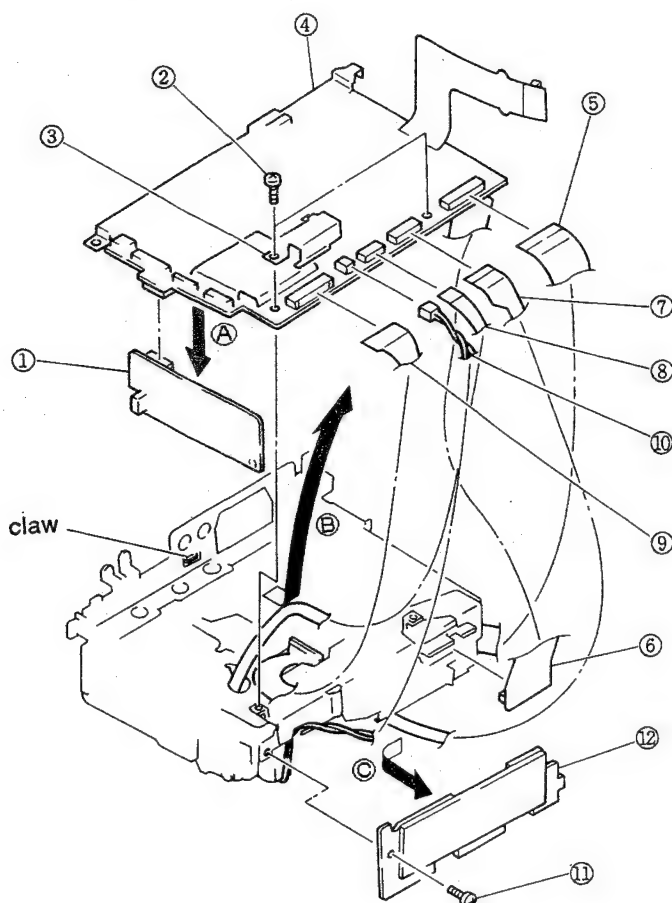
3-11. Disassembly of MD Frame



[Procedure]

- ① Remove a screw.
- ② Remove a screw.
- ③ Remove a screw.
- ④ Dismount the MD Frame Assembly.

3-12. Disassembly of VS-72 Board



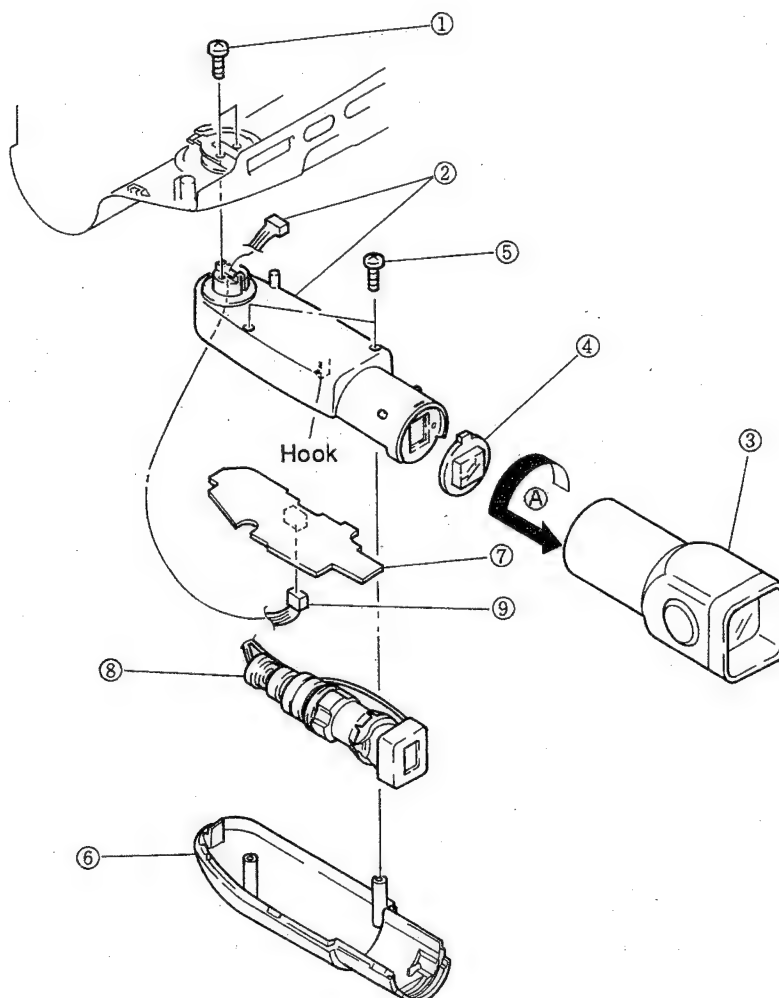
[Procedure]

- ① Disconnect the AU-95P Board in the direction of arrow A.
- ② Remove two screws.
- ③ Remove the RP Connector Shield.
- ④ Release the VS-72 Board from the claw, then open it in the direction of arrow B.
- ⑤ Disconnect the connector CN602 (FP-149 Flexible Board) on the VS-72 Board.
- ⑥ Remove the FP-182 Flexible Board.
- ⑦ Disconnect the connector CN501 (DL-18 Flexible Board) on the VS-72 Board.
- ⑧ Disconnect the connector CN601 (FP-114 Flexible Board) on the VS-72 Board.
- ⑨ Disconnect the connector CN101 (DL-17 Flexible Board) on the VS-72 Board.
- ⑩ Disconnect the connector CN607 on the VS-72 Board.
- ⑪ Remove the screw. (P2×3)
- ⑫ Remove the PD-18 Board in the direction of arrow C.

CAUTION:

Do not pull wires when disconnecting the connector CN607. Because wires will be damaged.

3-13. Disassembly of EVF Assembly

**[Procedure]**

- ① Remove two screws.
- ② Remove the EVF Cabinet Assembly. Pass the connector through a square hole.
- ③ Turn the Finder Holder Block Assembly in the direction of arrow (A) and draw it out.
(Pay attention to the hook.)
- ④ Remove the CRT Cover.
- ⑤ Remove two screws.
- ⑥ Remove the EVF Cabinet (R) Assembly.
- ⑦ Release a hook of the EVF Cabinet Assembly (L) and remove the VF-40P Board.
- ⑧ Remove the CRT Assembly.
- ⑨ Disconnect the connector CN951 on the VF-40P Board.

CAUTION:

Do not pull wires when disconnecting each connector. Because wires will be damaged.

3 Disassembly

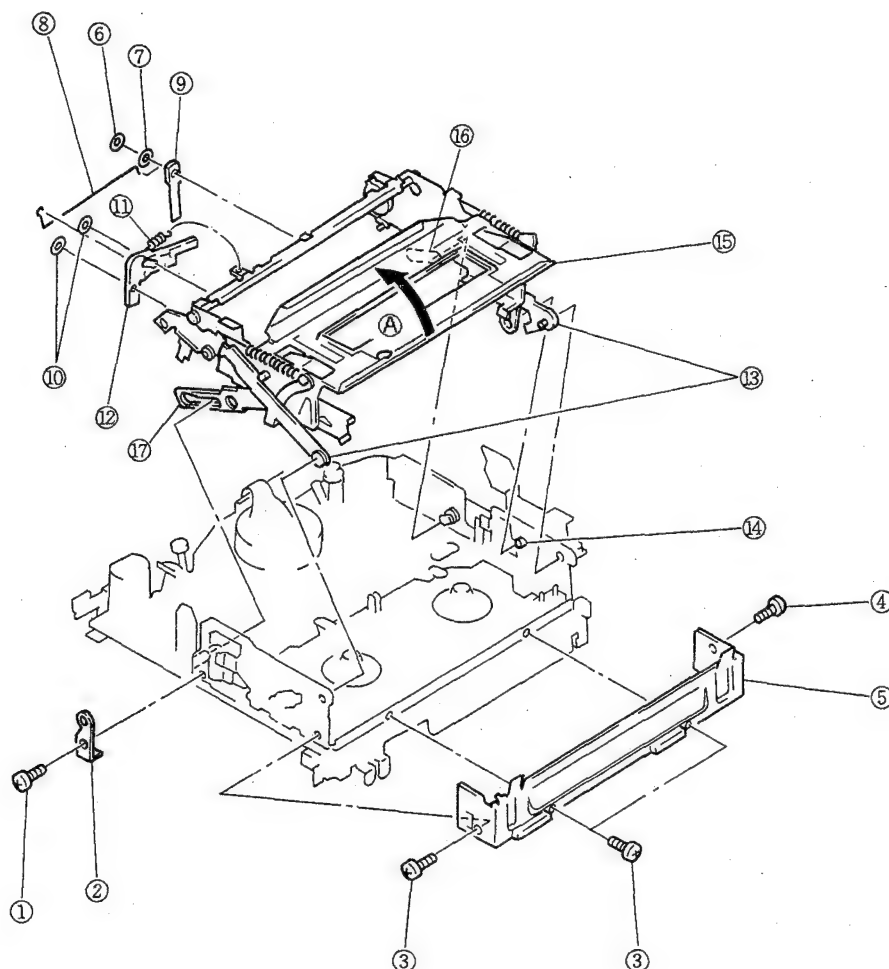
3-14. Disassembly of Cassette Compartment Holder Block Assembly

NOTE:

In the beginning set to **USE** mode.

(When setting to **USE** mode, see "1-4. Handling of Mode Selector" in "8 mm video mechanical adjustment manual II

FL Mechanism (Q mechanism".)



[Procedure]

- ① Remove a screw.
- ② Dismount the LS Support.
- ③ Remove three screws.
- ④ Remove a screw.
- ⑤ Dismount the LS Frame.
- ⑥ Remove a stopper washer.
- ⑦ Remove a washer.
- ⑧ Remove the Joint Bar.
- ⑨ Dismount the T Protector Assembly.
- ⑩ Remove two stopper washers.
- ⑪ Remove the tension spring.
- ⑫ Dismount the TP Arm Assembly.
- ⑬ Draw the shaft out from the hole.
- ⑭ Draw the shaft out from the long hole.
- ⑮ Lift up the Cassette Compartment Holder Block Assembly in the direction of arrow **A**.
- ⑯ Draw the shaft out from the long hole.
- ⑰ Draw the shaft out from the long hole.

4. CAMERA ADJUSTMENTS

During the adjustment, see arrangement diagram for adjustment parts from page 55.

4-1. Pre-Adjustment preparations (Camera Block)

4-1-1. List of Servicing Jigs

- Oscilloscope
- Regulated power supply (2 units)
- Vectorscope
- Digital voltmeter
- Adjustment screwdriver
- Color monitor
- Stop watch

Ref. No.	Part Name	Part No.	Use
J-1	Filter (C14) for color temperature correction	J-6080-058-A	Auto-white balance adjustment/confirmation
J-2	ND filter 1.0	J-6080-808-A	Max. gain adjustment (two filters used)
	ND filter 0.4	J-6080-806-A	Iris adjustment, iris in/out adjustment (two used), Max. gain adjustment
	ND filter 0.1	J-6080-807-A	Iris adjustment, iris in/out adjustment
J-3	Pattern box PTB-450 *1		
J-4	Pattern box color chart	J-6020-250-A	
J-5	Siemens star	J-6080-875-A	For flange back adjustment
J-6	AF microprocessor data reading jig	J-6082-025-A	
J-7	Adjustment remote controller (RM-95 Modification)	J-6082-053-A	
J-8	Extension cord (16P)	J-6082-062-A	Extension for CF-0 (operation switch) block (during operation)
	Extension cord (14P)	J-6082-061-A	Extension cord for CD-66P board (when repairing VC-98P board)
	Extension cord (20P)	J-6082-063-B	Extension cord for LD-43 board (when repairing VC-98P board) Extension cord for TI-37P board (when repairing TI-37P board)
J-9	Extension cord (10P)	J-6082-064-A	Extension cord for video I/O terminal (when repairing VS-72 board)
J-10	Wide converter focus adjustment jig		For focus adjustment of wide converter

*1 PTB-500 (J-6029-140-A) can also be used.

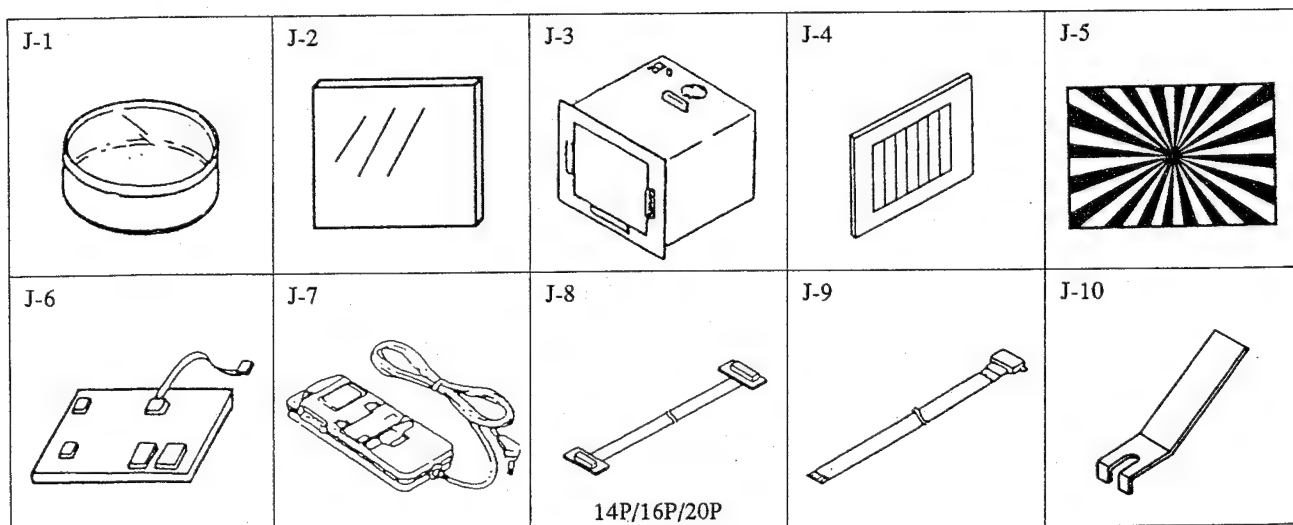


Fig. 4-1.

4 Camera Adjustments

4-1-2. Preparations

Note: Refer to "3. Disassembly" for details on removal of the cabinet and various boards.

- 1) Connect the various devices for adjustment as shown in Fig. 4-3.
- 2) The EVF (electronic viewfinder) is needed for confirmation of the white balance mode and shutter speed. Remove CN205 on the VS-72 board when the EVF is not needed.
- 3) The mic amplifier (MA-73P board) is not needed. Remove CN402 on the AU-95P board.

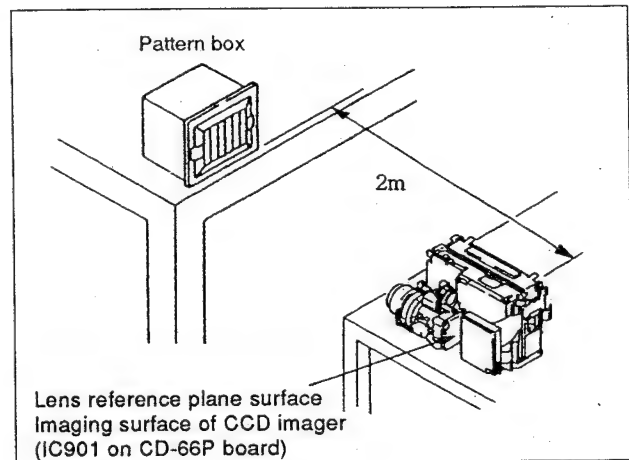


Fig. 4-2.

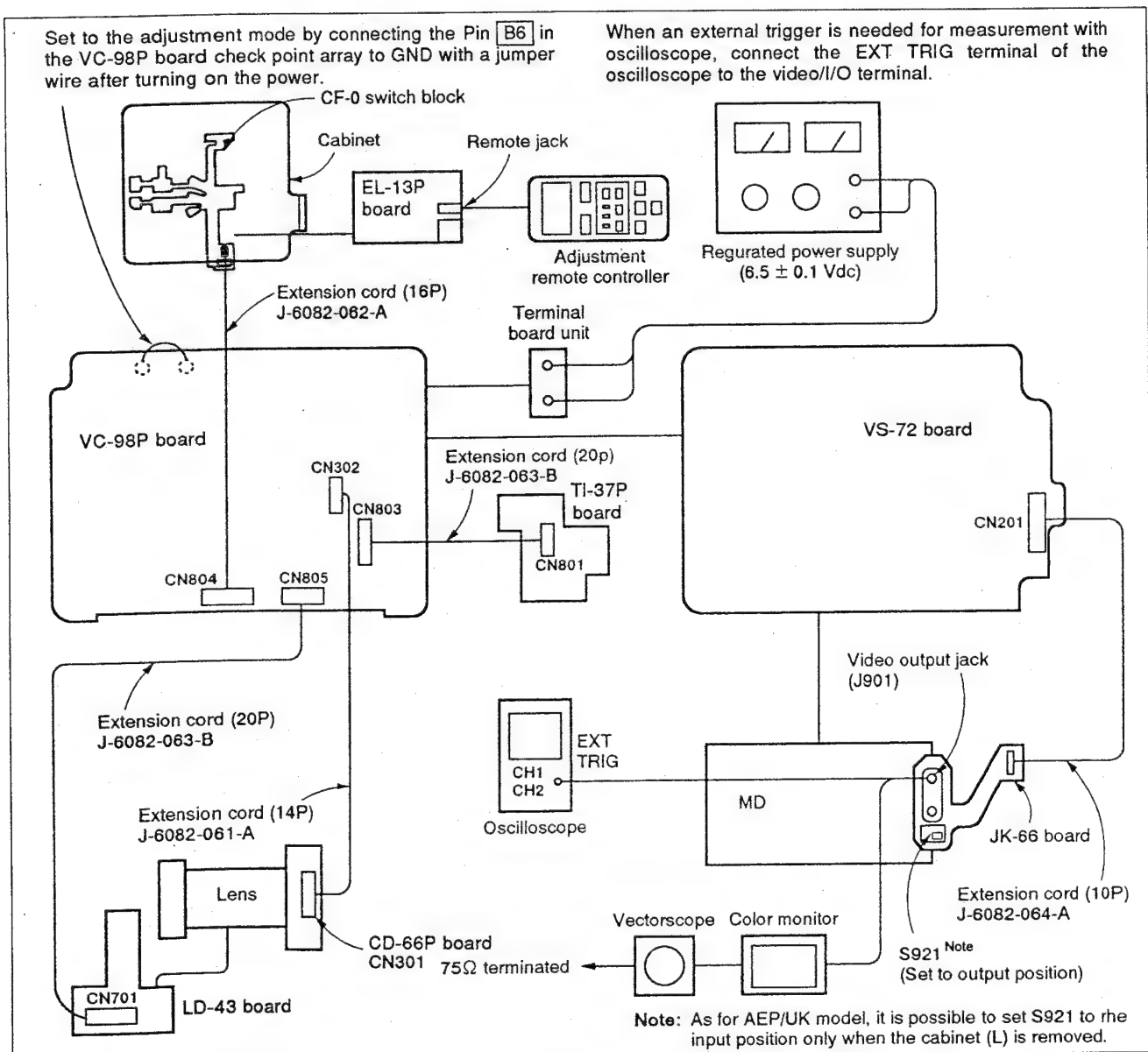


Fig. 4-3.

4-1-3. Precautions

A. Setting of switches

Unless otherwise specified, the switches are set to the following positions and adjustment is made without a cassette inserted.

1. Camera/video power switch (S901 on FK-0 board)CAMERA
2. Standby switch (S909 on FK-0 board)STANDBY
3. Backlight correction button (S762 on SW-178 board)OFF

B. Adjustment order

As a rule, the adjustments are performed in the listed order.

C. Subjects

- 1) Color bar chart (standard picture frame)
When performing adjustment using the color bar chart, adjust the picture frame shown in Fig. 4-4.
- 2) White pattern (standard picture frame)
Remove the color bar chart from the pattern box and use the zoom button so that the white pattern has the same size and is in the same position as the color bar chart (standard picture frame).

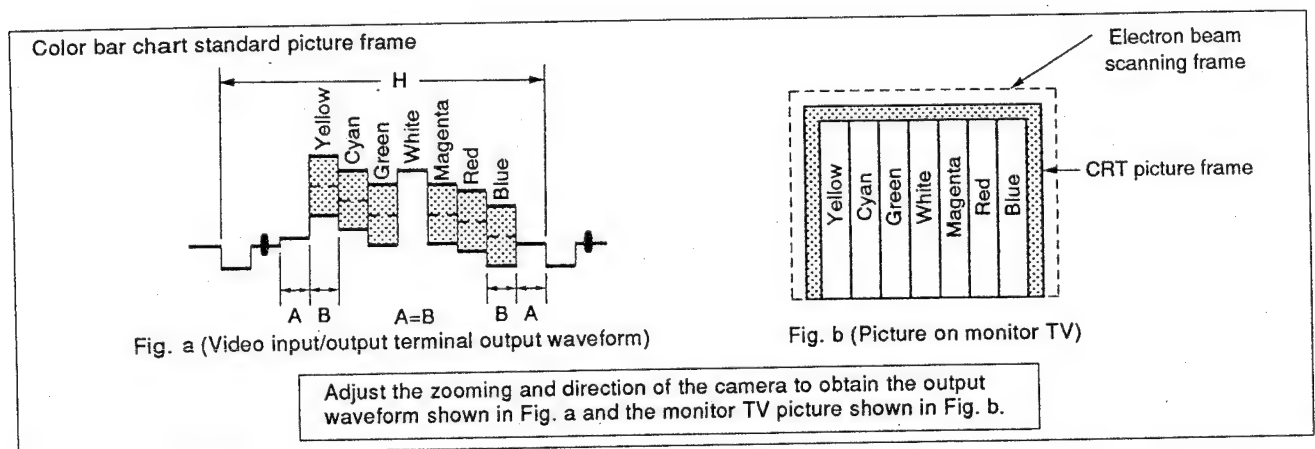


Fig. 4-4.

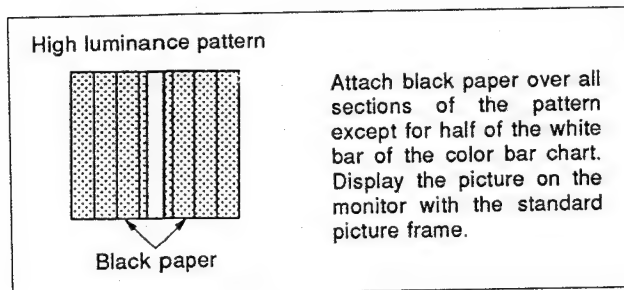


Fig. 4-5.

- 3) All white pattern
Remove the color bar chart from the pattern box and set the zoom ring fully to the TELE (42 mm) side.
- 4) High luminance pattern
Create the high luminance pattern as shown in Fig. 4-5., and adjust for the picture frame shown in Fig. 4-6.
- 5) Siemens star (J-6080-875-A)
Adjust the direction of the camera so that center of the Siemens star is lined up with the center of the monitor screen on the monitor TV screen.

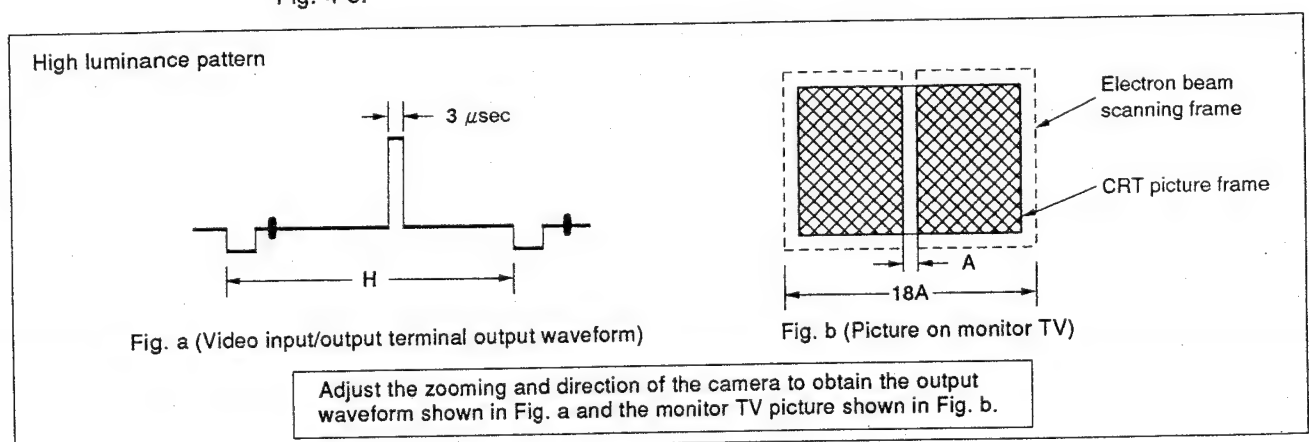


Fig. 4-6.

4-1-4. Adjustment Remote Controller

An EVR (electronic variable resistor) is used as the adjustment element for the camera block, replacing the conventional semi-fixed resistor. The EVR is controlled by the EVR/AWB microprocessor (IC361 on VC-98P board). This microprocessor reads the data written in the nonvolatile memory of the microprocessor and sends it to the EVR. The EVR D-A converts this data (8 bits for each adjustment point) and creates the adjustment voltage.

Thus, it is necessary to change the adjustment data contained in the nonvolatile memory when adjusting the camera block, and the adjustment memory is used for this purpose.

The adjustment remote controller performs bidirectional communications with the camera block microprocessor using the remote control signal lines (LANC). Adjustment address and adjustment data increment/decrement commands are sent to the camera block microprocessor from the adjustment remote controller. Adjustment address and adjustment data are sent from the camera block microprocessor to the adjustment remote controller.

A. Use of adjustment remote controller

Solder the lead wire to Pin **B6** (refer to 4-1-5.) of the check point array on the VC-98P board.

- 1) Connect the adjustment remote controller to the remote terminal (J902 on EL-13P board). (Set the HOLD switch of the adjustment remote controller to the HOLD position (SERVICE position).)
- 2) Turn on the power of the main unit.
- 3) Connect Pin **B6** (CAM ADJ) of the check point array to GND using a jumper wire.
(This connection causes the EVR/AWB microprocessor to cease normal remote control operation and to begin adjustment dedicated communications.)

Note: Be sure to make this connection only after turning on the power. The following will be displayed on the LCD of the adjustment remote controller if the connection is normal. (Adjustment data varies according to the unit.)

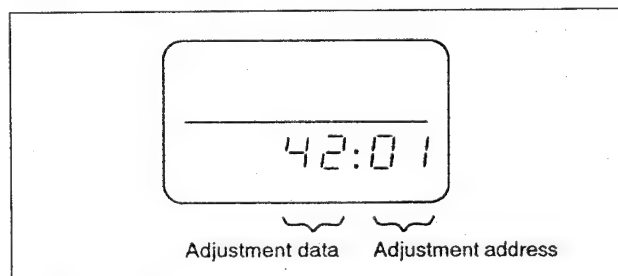


Fig. 4-7

- 4) Designate the desired adjustment address using the adjustment remote controller. The adjustment address is incremented by pressing the FF (▶▶) button and decremented by pressing the REW (◀◀) button. (The adjustment address is indicated in hexadecimal, and there are 117 addresses from 01 to 75. The adjustment address corresponds to the EVR (IC252, IC302, IC611 on VC-98P board) output terminals. Refer to Table 4-3 for the adjustment contents of the various address.)

- 5) Perform adjustment by incrementing or decrementing the adjustment data.

The adjustment data is incremented by pressing the PLAY (▶) button. The adjustment data is decremented by pressing the STOP (■) button.

- The adjustment data is indicated in hexadecimal.
- There are 256 values from 00 to FF.

Hexadecimal	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Indication	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal equivalent	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 4-1.

- The adjustment data corresponds to the EVR (IC252, IC302, IC611 on VC-98P board) output voltage, and is as follows.

Adjustment data () is decimal equivalent	EVR output voltage
FF (=255)	Maximum value (approx. 5Vdc)
F0 (=240)	
E0 (=224)	
D0 (=208)	
C0 (=192)	
B0 (=176)	
A0 (=160)	
90 (=144)	
80 (=128)	Center value (approx. 2.5Vdc)
70 (=112)	
60 (=96)	
50 (=80)	
40 (=64)	
30 (=48)	
20 (=32)	
10 (=16)	
00 (=0)	Minimum value (approx. 0Vdc)

Table 4-2.

B. Precautions on use of adjustment remote controller

It is possible to accidentally erase correct adjustment data due to an error in operation of the adjustment remote controller. In order to prevent this, we recommend that you make a note of all adjustment data before adjustment and record the new adjustment data after completing each adjustment item.

Note: Data already described in the adjustment data memo column are fixed data.

- 6) The adjustment address is changed using the FF (▶▶) button or REW (◀◀) button to store the adjustment data in the nonvolatile memory or EVR/AWB microprocessor (IC361 on VC-98P board).

(The new adjustment data is not stored in the nonvolatile memory unless this operation is performed.)

4 Camera Adjustments

FF60WIDE REPAIR MANUAL

C. Adjustment contents of the various address

Adjustment address	Adjustment voltage output terminal	Adjustment item	Remarks	Adjustment data memo column																				
01	Pin ⑮ of IC252	DELTA R	Auto-white balance adjustment																					
02	Pin ⑯ of IC252	DELTA B																						
03	Pin ② of IC252	FADER		00																				
04	Pin ③ of IC252	C PED		A0																				
05	Pin ④ of IC252	R-Y GAIN	Color reproduction adjustment (gain)																					
06	Pin ⑤ of IC252	B-Y GAIN																						
07	Pin ⑥ of IC252	R-Y HUE	Color reproduction adjustment (hue)																					
08	Pin ⑦ of IC252	B-Y HUE																						
09	Pin ⑧ of IC252	C LEVEL	Chroma level adjustment																					
0A	Pin ⑨ of IC252	TITLE Y	Title Y level adjustment																					
0B	Pin ⑫ of IC252	R GAIN	Indoor white balance adjustment																					
0C	Pin ⑬ of IC252	B GAIN																						
0D	Pin ⑮ of IC302	C1 GAIN	Chroma signal matrix adjustment (1)																					
0E	Pin ⑯ of IC302	Y1 GAIN	Y signal matrix adjustment																					
0F	Pin ② of IC302	FADER LEVEL	Not used	—																				
10	Pin ③ of IC302	BURST LEVEL																						
11	Pin ④ of IC302	HUE CONT	Not used	—																				
12	Pin ⑤ of IC302	SYNC LEVEL																						
13	Pin ⑥ of IC302	SET UP																						
14	Pin ⑦ of IC302	WHITE CLIP (WC)	White clip adjustment																					
15	Pin ⑧ of IC302	Y LEVEL																						
16	Pin ⑨ of IC302	APERTURE	Aperture adjustment																					
17	Pin ⑫ of IC302	YH GAIN	YH level adjustment																					
18	Pin ⑬ of IC302	C2 GAIN	Chroma signal matrix adjustment (2)																					
19	Pin ⑮ of IC611	IRIS																						
1A			Not used	—																				
1B	Pin ② of IC611	HALL OFFSET	Hall adjustment																					
1C	Pin ③ of IC611	MAX GAIN																						
1D	Pin ④ of IC611	AGC																						
1E	Pin ⑤ of IC611	V SUB																						
1F			Not used	—																				
20	Pin ⑦ of IC611	PG CONT																						
21	Pin ⑧ of IC611	TITLE A/D	Title A/D level adjustment																					
22	Pin ⑨ of IC611	ZOOM L SPD	Power zoom speed adjustment																					
23	Pin ⑫ of IC611	ZOOM H SPD																						
24	Pin ⑬ of IC611	FOCUS SPEED																						
25		MODE	The following adjustment modes are selected by changing the adjustment data. <table><tr><th>Adjustment data</th><th>Adjustment mode</th></tr><tr><td>00</td><td>Release</td></tr><tr><td>01</td><td>Focus hunching</td></tr><tr><td>03</td><td>Zoom position</td></tr><tr><td>05</td><td>Hall, iris close</td></tr><tr><td>07</td><td>Hall, iris open</td></tr><tr><td>09</td><td>Hall, in/out threshold</td></tr><tr><td>0B</td><td>Auto-focus LLA</td></tr><tr><td>FD</td><td>Auto-focus filter fixed at FA</td></tr><tr><td>FF</td><td>Auto-focus filter fixed at FH</td></tr></table>	Adjustment data	Adjustment mode	00	Release	01	Focus hunching	03	Zoom position	05	Hall, iris close	07	Hall, iris open	09	Hall, in/out threshold	0B	Auto-focus LLA	FD	Auto-focus filter fixed at FA	FF	Auto-focus filter fixed at FH	00
Adjustment data	Adjustment mode																							
00	Release																							
01	Focus hunching																							
03	Zoom position																							
05	Hall, iris close																							
07	Hall, iris open																							
09	Hall, in/out threshold																							
0B	Auto-focus LLA																							
FD	Auto-focus filter fixed at FA																							
FF	Auto-focus filter fixed at FH																							

Table 4-3. (1)

4 Camera Adjustments

Adjustment address	Adjustment voltage output terminal	Adjustment item	Remarks		Adjustment data memo column
26		FG REF			36
27		MACRO			
28		FHW/ IN OUT DOOR			1A
29		BACK RUSH			31
2A		BASE-H			30
2B		LC-THR			18
2C		SEARCH			12
2D		HALL OUT	Hall in/out adjustment		
2E		HALL IN			
2F		STILL THR1			02
30		STILL THR2			02
31		STILL THR3			01
32		FH W	Auto-focus adjustment		
33		FH B			
34		AGC W			
35		AGC B			
36		ZOOM THR			18
37		IRIS THR			18
38		V PULSE			68
39		R32MSB	3200K preset data (The data written in this column are inputed auto- matically when performing the auto-white balance adjustment.)		
3A		R32LSB			
3B		B32MSB			
3C		B32LSB			
3D		G32MSB			
3E		G32LSB			
3F		START R	R CONT and B CONT data when starting the auto-white balance operation.	Auto-white balance adjustment	
40		START B			
41		TM DIVID	Border value of the tracking frame	Auto-white balance fixed data	44
42		BM DIVID			28
43		TOP SLP R	R CONT coefficient of the upper step of the tracking frame		80
44		TOP SLP B	B CONT coefficient of the upper step of the tracking frame	Auto-white balance adjustment	
45		MDL SLP R	R CONT and B CONT coeffi- cient of the middle step of the tracking frame	Auto-white balance fixed data	4B
46		MDL SLP B			40
47		BTM SLP R			30
48		BTM SLP B			50
49		KIKO R			5C
4A		KIKO B			20
4B		TOP UP	Upper and lower limit frames of the upper step of the tracking frame	Auto-white balance adjustment	
4C		TOP DWN			
4D		MDL UP	Upper and lower limit frames of the upper, middle and lower steps of the tracking frame	Auto-white balance fixed data	85
4E		MDL DWN			70
4F		BTM UP			6E
50		BTM DWN			53
51		KEIKO DWN			58
52		R DWN LMT	R CONT data upper and lower limit of the tracking frame		21
53		R TOP LMT			69

Table 4-3. (2)

4 Camera Adjustments

FF60WIDE REPAIR MANUAL

Adjustment address	Adjustment voltage output terminal	Adjustment item	Remarks		Adjustment data memo column
54		B UP LMT	B CONT data upper limit of the tracking frame	Auto-white balance adjustment	
55		IN BTOP	INDOOR operation frame upper limit of the tracking frame		
56		IN BMAX	B CONT data upper limit of INDOOR mode		
57		OUT BMIN	B CONT data lower limit of OUTDOOR mode		
58		OUT BDWN	OUTDOOR mode operation frame lower limit of the tracking frame		
59		B DWN LMT	B CONT data lower limit of the tracking frame	Auto-white balance fixed data	10
5A		R OUTDOOR	White balance preset data	Auto-white balance adjustment	
5B		B OUTDOOR			
5C		Ra	R CONT and B CONT data of the points a, b and c on the curve of blackbody radiation		
5D		Rb			
5E		Rc			
5F		Ba			
60		Bb			
61		Bc			
62		R/B TOP	Slope data of the curve of blackbody radiation		
63		R/B MDL			
64		R/B DWN			
65		B/R TOP			
66		B/R MDL			
67		B/R DWN			
68		KEIKO	Indoor AWB data	Auto-white balance fixed data	60
69		LL LMT	Minimum tracking illuminance		08
6A		B HUE KEI	Variable linear matrix data		00
6B		R GAIN OFF			00
6C		R GAIN KEI			00
6D		R HUE OFF			00
6E		R HUE KEI	00		
6F		DELAY TM	Tracking speed		10
70		FAST TM	Initial high speed tracking times		30
71		CAM DOS O	Fixed data		00
72		MODE		88	
73		DSP MODE		00	
74		CAM ALN		00	
75		AWB MODE	The following adjustment modes are selected by changing the adjustment		00
		Adjustment data	Adjustment mode		
		00	Release, factory setting		
		10	Auto-white balance adjustment mode		
		E0	3200K preset data read mode		
		F0	Auto white balance tracking zone discrimination invalid. All area discrimination mode.		

Table 4-3. (3)

4-1-5. Check Point Array

Almost all of the measurement points for camera block adjustment are located in the check point array on the VC-98P board. Solder short lead wires onto the terminals needed for adjustment and connect an oscilloscope, etc.

The terminal numbers and signal names for the check point array are shown in Table 4-4.

Terminal No.	Signal name	Terminal No.	Signal name
A1	G OUT	B1	N.C.
A2	PG CONT	B2	N.C.
A3	N.C.	B3	Y (LPF) OUT
A4	Y0	B4	V SUB
A5	Y1	B5	AW ADJ
A6	C0	B6	CAM ADJ
A7	C1	B7	OFFSET CONT
A8	CAM Y	B8	N.C.
A9	YH	B9	N.C.
A10	CAM C	B10	GND
A11	IRIS CONT	B11	IRIS DET

※N.C.no connection

Table 4-4.

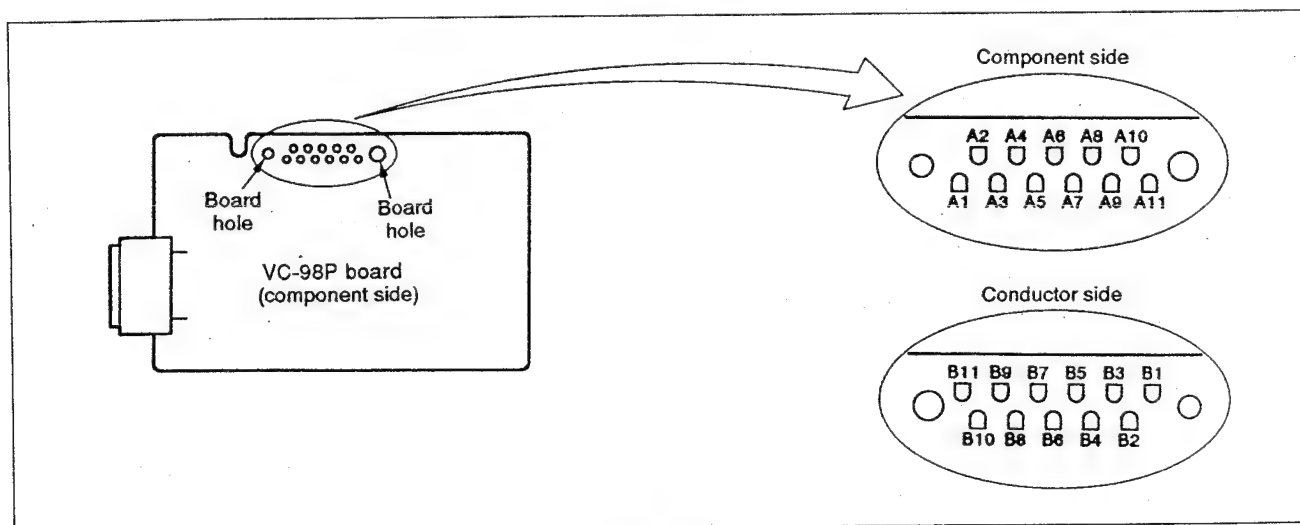


Fig. 4-8.

4-1-6. AF Microprocessor Data Reading Jig

The AF microprocessor data reading jig converts the serial data (output data varies according to hall (iris) state, focus state, focus motor speed, zoom ring position, etc.) for adjustment output from the AF microprocessor (IC613 on VC-98P board) into a 2-digit hexadecimal code and displays it on the LED.

Connections:

Connect as shown in the diagram below.

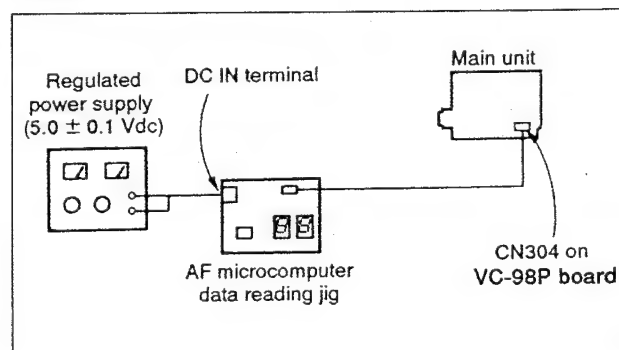


Fig. 4-9.

4 Camera Adjustments

4-1-7. Data Processing

For some of the adjustment items, calculation from the data (hexadecimal) indicated on the AF microprocessor data reading jig and adjustment remote controller is needed to obtain the adjustment data. In these cases, convert the hexadecimal values to decimal before calculation and reconvert the result to hexadecimal to obtain the adjustment data. A hexadecimal — decimal conversion table is shown in Table 4-5.

Hexadecimal-Decimal Conversion Table

Hexadecimal upper digit Hexadecimal lower digit																
	0	1	2	3	4	5	6	7	8	9	A (A)	B (B)	C (C)	D (D)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
B (B)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (C)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (D)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: () is the indication on the jig or adjustment remote controller.

Example: The indication on the jig or adjustment remote controller is BD (B D).

As the upper digit is B (B) and the lower digit is D (D), a decimal value of 189 is obtained from the intersection of ① and ② in the above table.

Table 4-5.

4-2. Camera System Adjustments

4-2-1. Flange Back Adjustment

Subject	Siemens star (2 m directly in front of lens reference plane (CCD imager))
Measurement Point	Check with a monitor TV
Measuring Instrument	
Adjusting Element	Flange back adjusting pin
Tools	Phillips screwdriver, flat blade (-) screwdriver

Adjusting method:

- 1) Press the FOCUS switch (S757 on CF-0 board) to set to the MANUAL mode.
- 2) Position a Siemens star 2 m directly in front of the lens reference plane (See Fig. 4-2.).
- 3) Orient the camera block to have the center of the Siemens star imaged on the monitor TV screen coincide with the monitor screen center.
- 4) Check to assure the smooth motion of the zoom ring to both its extreme WIDE position (7 mm) and TELE position (42 mm) after pressing the zoom button, and then set it at the extreme WIDE position. (In this process, also check the monitor image to assure proper zooming operation.)
- 5) Select adjustment address 25 with the adjustment remote controller and enter adjustment data of 07. (Iris open mode) At this time, adjust the illumination on the Siemens star or place an ND filter over the lens, and confirm that the proper image is displayed on the monitor TV screen.
- 6) Set the lens focusing mark at the center of "2".

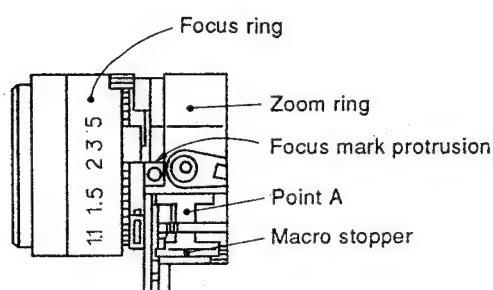


Fig. 4-10.

- 7) Loosen flange back setscrew ① with a Phillips screwdriver. (See Fig. 4-12.)
- 8) By turning the flange back adjustment Pin ② while watching the monitor screen, attain the optimum definition of a wedge at the Siemens star center on the screen. (Turn it a few times to the left and right to ensure optimum definition.)

Note: Do not turn the adjusting pin excessively in either direction.

- 9) While holding the flange back adjusting Pin ② to prevent further rotation, retighten the flange back setscrew ①.

- 10) With the zoom ring fixed at its WIDE end, turn the focusing ring and set it to the position that provides the optimum definition image of the wedge. Check to assure the focusing mark protrusion position is within the range shown in Fig. 4-11. Also, rotate the focusing ring to the close (1.1 m) and far (∞) extremes and confirm that the wedge is no longer in focus.

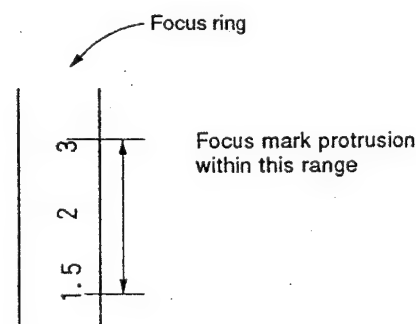


Fig. 4-11.

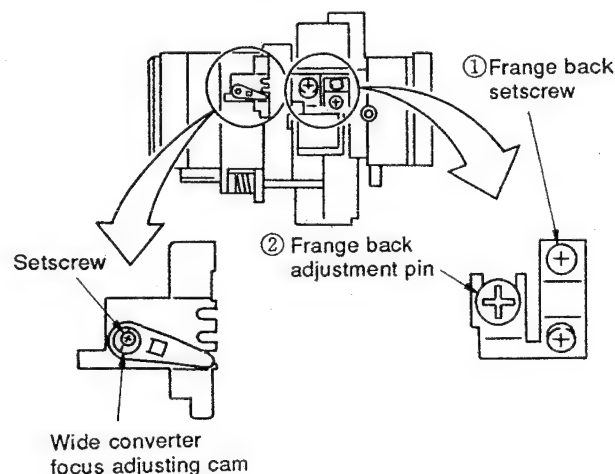


Fig. 4-12.

- 11) Fix the zoom lever at the extreme TELE position.
- 12) Turn the focusing ring and stop at the position where the wedge has optimum definition. Confirm that the focus mark is within ± 1.5 mm from the center of "2".
- 13) Select adjustment address 25 with the adjustment remote controller and enter adjustment data of 00. (Iris normal)
- 14) Change the adjustment address to store the adjustment data in the memory.

4 Camera Adjustments

4-2-2. Wide Converter Focus Adjustment

This adjustment is not needed unless otherwise the zoom lens or CCD unit was replaced.

Adjusting method:

(Make this adjustment after the flange back adjustment.)

- 1) Remove the focus window (acryloyl made) of the cabinet R by pushing it from inside of the cabinet R using a screwdriver. (The focus window cannot be reused.)
- 2) Mount up the camera completely.
- 3) Position a Siemens star 1 m directly in front of the lens reference plane.
- 4) Loosen the setscrew.
- 5) Turn the adjusting cam while setting in and out the wide converter lens of the cabinet F so that both a long distance (more than 20 m) and the Siemens star are focused, then tighten the setscrew.
When tightening the setscrew, set the wide converter in and confirm the focus again.
- 6) After tightening the setscrew, set the wide converter in and confirm the focus again.

4-2-3. Power Supply Check (VC-98P Board)

Measuring Instrument	Digital voltmeter
----------------------	-------------------

CAM 5V Check

Measurement Point	Pin ④ of W801
Specified Value	4.95 ± 0.02 Vdc

23V Check

Measurement Point	Pin ① of W801
Specified Value	23.08 ± 0.50 Vdc

15V Check

Measurement Point	Pin ② of W801
Specified Value	15.0 ± 0.05 Vdc

-9V Check

Measurement Point	Pin ③ of W801
Specified Value	-9.0 ± 0.4 Vdc

Checking method:

- 1) Confirm that each power supply voltage meets the specified value.

4-2-4. EVR Initial Settings

Set to the following initial settings of the adjustment data only when the EVR/AWB microprocessor (IC361 on VC-98P board) was replaced.

Adjustment address	Adjustment data initial value	Adjustment address	Adjustment data initial value	Adjustment address	Adjustment data initial value
01 (DELTA R)	50	2B (LC-THR)	10	4E (MDL DWN)	70
02 (DELTA B)	50	2C (SEARCH)	12	4F (BTM UP)	6E
03 (FADER OUT)	00	2F (STILL THR1)	02	50 (BTM DWN)	53
04 (C-PED)	A0	30 (STILL THR2)	02	51 (KEIKO DWN)	58
12 (SYNC LEVEL)	90	31 (STILL THR3)	01	52 (R DWN LMT)	21
13 (SET UP)	A0	32 (FH W)	00	53 (R TOP LMT)	69
14 (WC)	FF	33 (FH B)	01	59 (B DWN LMT)	10
15 (Y LEVEL)	A0	34 (AGC W)	10	68 (KEIKO)	60
17 (YH GAIN)	FF	35 (AGC B)	3F	69 (LL LMT)	08
19 (IRIS)	FF	36 (ZOOM THR)	18	6A (B HUE KEI)	00
1C (MAX GAIN)	C0	37 (IRIS THR)	18	6B (R GAIN OFF)	00
1D (AGC)	FF	38 (V PULSE)	68	6C (R GAIN KEI)	00
1E (Y SUB)	40	41 (TM DIVID)	44	6D (R HUE OFF)	00
20 (PG CONT)	A0	42 (BM DIVID)	28	6E (R HUE KEI)	00
22 (ZOOM L SPD)	32	43 (TOP SLP R)	80	6F (DELAY TM)	10
23 (ZOOM H SPD)	4F	45 (MDL SLP R)	4B	70 (FAST TM)	30
24 (FOCUS SPEED)	40	46 (MDL SLP B)	40	71 (CAM DDSO)	00
26 (FG REF)	35	47 (BTM SLP R)	30	72 (MODE)	88
27 (MACRO)	09	48 (BTM SLP B)	50	73 (DSP MODE)	00
28 (IN/OUT DOOR)	1A	49 (KEIKO R)	5C	74 (CAM ALN)	00
29 (BACK RUSH)	31	4A (KEIKO B)	20	75 (AWB MODE)	00
2A (BASE H)	30	4D (MDL UP)	85		

Tbale 4-6.

Adjustment method:

- 1) Set the RV701 (HALL ADJ) on the LD-43 board to the mechanical center.
- 2) Set the adjustment data at the various adjustment address to the initial values using the adjustment remote controller.
- 3) Change the adjustment address to store the last adjustment data in the memory.

4-2-5. 28MHz Local Oscillation Adjustment
(VC-98P Board)

Subject	Not needed
Measurement Point	Pin ② of IC612
Measuring Instrument	Frequency counter
Adjustment Address	CT143
Specified Value	14.31818 ± 0.0002 MHz

Adjusting method:

- 1) Adjust CT143 so that the oscillating frequency is 14.31818 ± 0.0002 MHz.

4 Camera Adjustments

4-2-6. PG CONT and V_{SUB} Adjustment

A. PG CONT Adjustment (VC-98P Board)

Subject	Not needed
Measurement Point	Pin A2 (PG CONT) of check point array
Measuring Instrument	Digital voltmeter
Adjustment Address	20 (PG CONT)
Specified Value	(Voltage indicated by the imager) \pm 0.1 Vdc

Adjusting method:

- 1) Change the adjustment data at adjustment address 20 using the adjustment remote controller to set the PG CONT voltage to (voltage indicated by the imager) \pm 0.1 Vdc.
- 2) Change the adjustment address to store the adjustment data in the memory.

B. V_{SUB} Adjustment (VC-98P Board)

Subject	Not needed
Measurement Point	Pin B4 (V SUB) of check point array
Measuring Instrument	Digital voltmeter
Adjustment Address	1E (V SUB)
Specified Value	(Voltage indicated by the imager) \pm 0.1 Vdc

Adjusting method:

- 1) Change the adjustment data at adjustment address 1E using the adjustment remote controller to set the V_{SUB} voltage to (voltage indicated by the imager) \pm 0.1 Vdc.
- 2) Change the adjustment address to store the adjustment data in the memory.

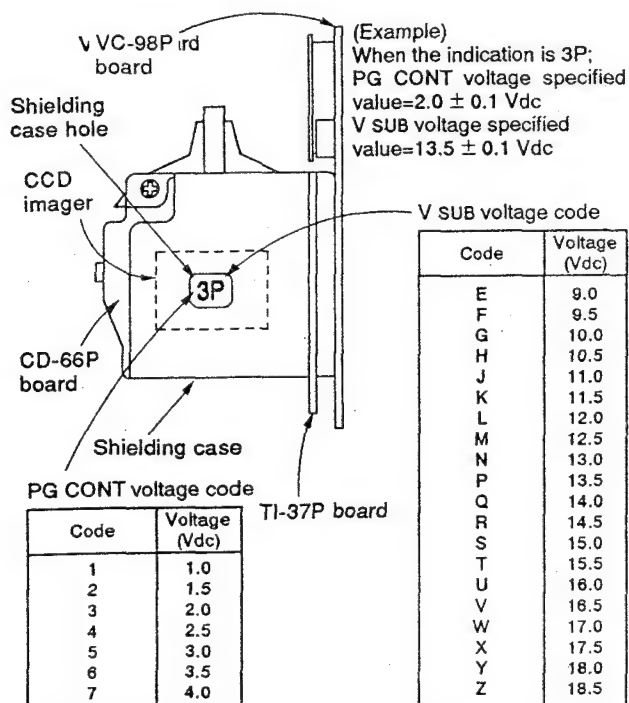


Fig. 4-13.

4-2-7. Hall Adjustment (LD-43 Board)

Subject	All black (cover lens with black cap)
Measurement Point	CN304 on the VC-98P board
Measuring Instrument	AF microprocessor data reading jig
Adjusting Element	RV701
Adjustment Address	1B (HALL OFFSET)
Specified Value	When iris closed: Minimum value of 01 to 04 When iris open: 3D or 3E

Preparations:

- 1) Prepare a 1k Ω resistor for connecting Pin **A11** (IRIS CONT) of the check point array and CAM 5V (Pin ④ of W801).

Adjustment method:

- 1) Set RV701 to the mechanical center.
- 2) Set the adjustment address to 25 with the adjustment remote controller, and set the adjustment data to 05. At the same time, connect Pin **A11** of the check point array and CAM 5V using 1k Ω resistor. (Setting when iris closed)
- 3) Change the adjustment address to 1B.
- 4) Change the adjustment data until the indication on the AF microprocessor data reading jig is the minimum value in the range of 01 to 04. (HALL OFFSET adjustment)
- 5) Change the adjustment address to 25 and set the adjustment data to 07. At the same time, remove the 1k Ω resistor at Pin **A11** of the check point array. (Setting when iris open)
- 6) Adjust RV701 until the indication on the AF microprocessor data reading jig is either 3D or 3E. (3D is indicated as 3 d.)
- 7) Repeat steps 2) through 6) until meet the specified values.
- 8) Set the adjustment address to 25 and set the adjustment data to 00. (Releases adjustment mode)
- 9) Change the adjustment address to store the adjustment data in the memory.

4-2-8. Iris Adjustment (VC-98P Board)

Subject	Color bar chart standard picture frame
Filter	ND filter 0.4 and 0.1
Measurement Point	Pin B11 (IRIS DET) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	19 (IRIS)
Specified Value	150 ± 10 mVp-p

Adjusting method:

- 1) Set the adjustment address to 19 with the adjustment remote controller.
- 2) Without attaching an ND filter, change the adjustment data with the adjustment remote controller to set the IRIS OUT signal level to 150 ± 10 mVp-p.
- 3) Attach the ND filter 0.5 (0.4+0.1) to the front of the lens and confirm that there is a smooth change in the signal level.
- 4) Remove the ND filter and confirm that the signal level is 150 ± 10 mVp-p.
- 5) Repeat 2) through 4) if the specified value is not met.
- 6) Change the adjustment address to store the adjustment data in the memory.

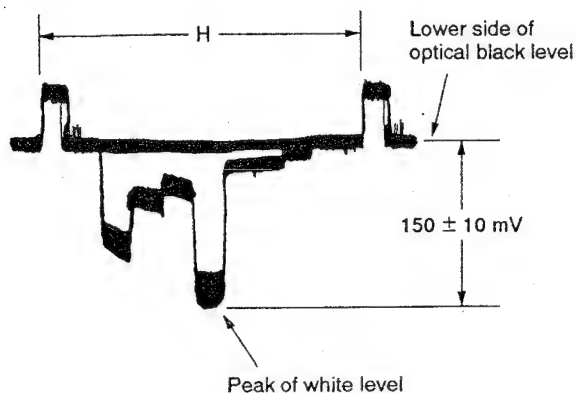


Fig. 4-14.

4-2-9. Hall In/Out Adjustment (VC-98P Board)

Subject	White pattern standard picture frame
Filter	ND filter 0.4 (two) and 0.1 (one)
Measurement Point	CN304
Measuring Instrument	AF microprocessor data reading jig
Adjustment Address	2E (HALL IN) 2D (HALL OUT)

Adjustment method:

- 1) Cover the lens with the ND filter 0.8 (0.4+0.4)
- 2) Set the adjustment address to 25 with the adjustment remote controller and set the adjustment data to 09. (Hall in/out threshold mode setting)
- 3) Read the data indicated on the AF microprocessor data reading jig and set this data to the adjustment address 2E.
- 4) Remove the ND filter 0.8 and replace it with ND filter 0.5 (0.4+0.1).
- 5) Read the data indicated on the AF microprocessor data reading jig and set this data to the adjustment address 2D.
- 6) Change the adjustment address to 25 and set the adjustment data 00. (Releases hall in/out threshold mode)
- 7) Change the adjustment address to store the adjustment data in the memory.

4-2-10. AGC Adjustment (VC-98P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin B3 (Y (LPF) OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	1D (AGC)
Specified Value	160 ± 5 mVp-p

Adjusting method:

- 1) Set the adjustment address to 1D using the adjustment remote controller.
- 2) Change the adjustment data with the adjustment remote controller to set the Y (LPF) signal level to 160 ± 5 mVp-p.
- 3) Change the adjustment address to store the adjustment data in the memory.

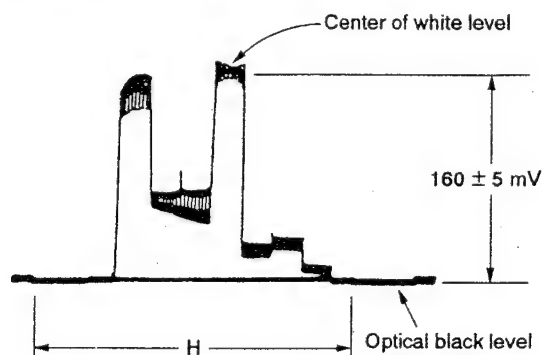


Fig. 4-15.

4 Camera Adjustments

4-2-11. Y Signal Matrix Adjustment (VC-98P Board)

Subject	Color bar chart standard picture frame
Measurement Point	1: Pin A4 (Y0) of check point array 2: Pin A5 (Y1) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	0E (Y1 GAIN)
Specified Value	Y1 signal level = Y0 signal level

Adjusting method:

- 1) Connect the oscilloscope to Pin **A4** of the check point array and measure the Y0 signal level.
- 2) Connect the oscilloscope to Pin **A5** of the check point array.
- 3) Set the adjustment address to 0E using the adjustment remote controller.
- 4) Change the adjustment data until the Y1 signal level is the same as the Y0 signal level measured in 1)
- 5) Change the adjustment address to store the adjustment data in the memory.

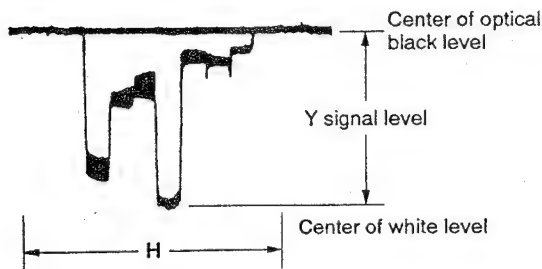


Fig. 4-16.

4-2-12. Chroma Signal Matrix Adjustment (1) (VC-98P Board)

Subject	Color bar chart standard picture frame
Measurement Point	1: Pin A6 (C0) of check point array 2: Pin A7 (C1) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	0D (C1 GAIN)
Specified Value	C1 signal level = C0 signal level

Adjusting method:

- 1) Connect the oscilloscope to Pin **A6** of the check point array and measure the C0 signal level. (The C0 signal level is the larger of the CR and CB signal levels.)
- 2) Connect the oscilloscope to Pin **A7** of the check point array.
- 3) Set the adjustment address to 0D using the adjustment remote controller.
- 4) Change the adjustment data until the C1 signal level is the same as the C0 signal level measured in 1)
- 5) Change the adjustment address to store the adjustment data in the memory.

Note: Measure the center level of the luminance line width, when the noise falls on the signal.

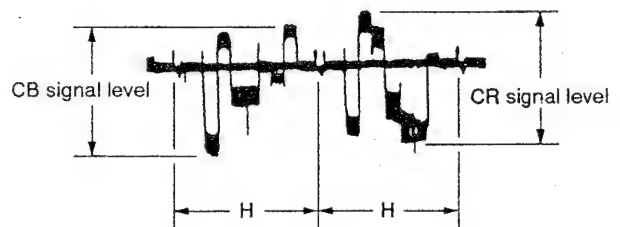


Fig. 4-17. C0 and C1 signal levels

4 Camera Adjustments

4-2-13. Chroma Signal Matrix Adjustment (2) (VC-98P Board)

Subject	Color bar chart standard picture frame
Measurement Point	CH1 (X): emitter of Q257 (B-Y) CH2 (Y): emitter of Q255 (R-Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	18 (C2 GAIN)
Specified Value	Separate color luminance points become one.

Note: Adjustment can be made in the same manner using a vectorscope.
(Vectorscope connection terminal: video input/output terminal)

Adjusting method:

- 1) Set the adjustment address to 18 using the adjustment remote controller.
- 2) Change the adjustment data so that the two separate color luminance points become one respectively.
- 3) Change the adjustment address to store the adjustment data in the memory.

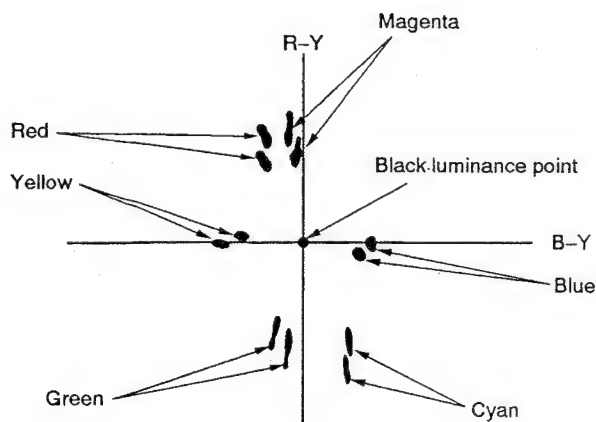


Fig. 4-18.

4-2-14. YH Level Adjustment (VC-98P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin A9 (YH) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	17 (Y GAIN)
Specified Value	900 ± 40 mVp-p

Adjusting method:

- 1) Set the adjustment address to 17 with the adjustment remote controller.
- 2) Change the adjustment data with the adjustment remote controller to set the YH signal level to 900 ± 40 mVp-p.
- 3) Change the adjustment address to store the adjustment data in the memory.

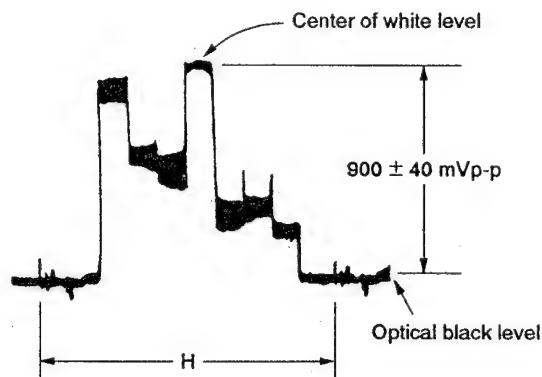


Fig. 4-19.

4-2-15. Sync Level Adjustment (VC-98P Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin A8 (CAM Y) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	12 (SYNC LEVEL)
Specified Value	300 ± 5 mVp-p

Adjusting method:

- 1) Set the adjustment address to 12 with the adjustment remote controller.
- 2) Change the adjustment data with the adjustment remote controller to set the sync level to 300 ± 5 mVp-p.
- 3) Change the adjustment address to store the adjustment data in the memory.

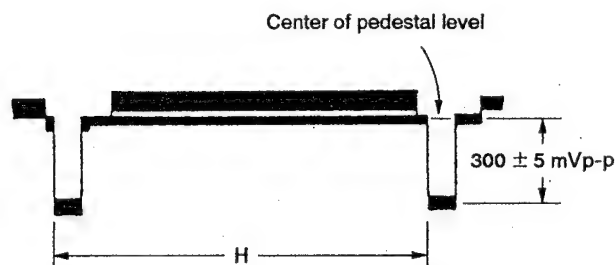


Fig. 4-20.

4 Camera Adjustments

FF60WIDE REPAIR MANUAL

4-2-16. Setup Adjustment (VC-98P Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin A8 (CAM Y) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	13 (SET UP)
Specified Value	30 ± 10 mV

Note: 1) and 2) are steps taken to reduce noise.

Adjusting method:

- 1) Set the address to 16 (APERTURE) with the adjustment remote controller, and enter 00 as the adjustment data after making a note of the adjustment data for this address.
- 2) Set the address to 1C (MAX GAIN) with the adjustment remote controller, and enter 00 as the adjustment data after making a note of the adjustment data for this address.
- 3) Set the address to 15 (Y LEVEL) with the adjustment remote controller, and enter 90 as the adjustment data after making a note of the adjustment data for this address.
- 4) Set the adjustment address to 13 with the adjustment remote controller.
- 5) Change the adjustment data with the adjustment remote controller to set the setup level to 30 ± 10 mV.
- 6) Set the adjustment address to 16 and enter the adjustment data recorded in 1).
- 7) Set the adjustment address to 1C and enter the adjustment data recorded in 2).
- 8) Set the adjustment address to 15 and enter the adjustment data recorded in 3).
- 9) Change the adjustment address to store the adjustment data in the memory.

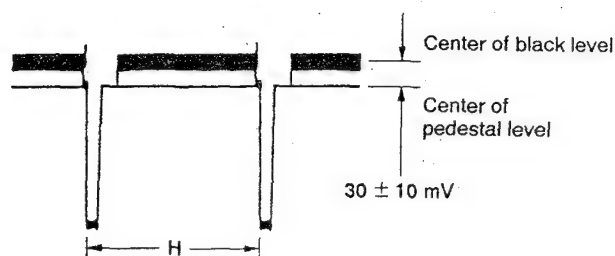


Fig. 4-21.

4-2-17. White Clip Adjustment (VC-98P Board)

Subject	High luminance pattern
Measurement Point	Pin A8 (CAM Y) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	14 (WHITE CLIP)
Specified Value	840 ± 20 mV

Adjusting method:

- 1) Set the adjustment address to 15 with the adjustment remote controller, and make a note of the adjustment data for this address.
- 2) Set the adjustment data to 40 with the adjustment remote controller.
- 3) Set the adjustment address to 14 with the adjustment remote controller.
- 4) Change the adjustment data with the adjustment remote controller to set the white clip level to 840 ± 20 mV.
- 5) Set the adjustment address to 15 and enter the adjustment data recorded in 1).
- 6) Change the adjustment address to store the adjustment data in the memory.

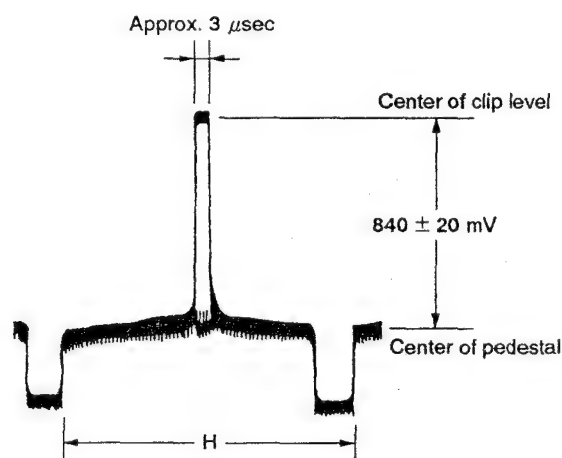


Fig. 4-22.

4 Camera Adjustments

4-2-18. Y Level Adjustment (VC-98P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin A8 (CAM Y) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	15 (Y LEVEL)
Specified Value	$640 \pm 10 \text{ mV}$

Adjustment method:

- 1) Set the adjustment address to 14 with the adjustment remote controller, and make a note of the adjustment data for this address.
- 2) Set the adjustment data to FF with the adjustment remote controller.
- 3) Set the adjustment address to 15 with the adjustment remote controller.
- 4) Change the adjustment data with the adjustment remote controller to set the Y signal level to $640 \pm 10 \text{ mV}$.
- 5) Set the adjustment address to 14 and enter the adjustment data recorded in 1).
- 6) Change the adjustment address to store the adjustment data in the memory.

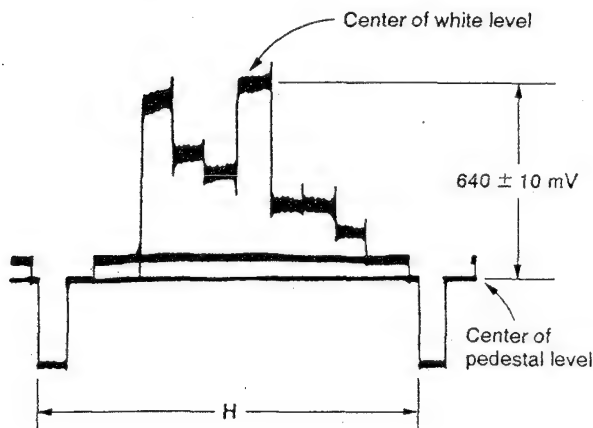


Fig. 4-23.

4-2-19. Max. Gain Adjustment (VC-98P Board)

Subject	Color bar chart standard picture frame
Filter	ND filters 1.0 (two) and 0.4 (one)
Measurement Point	Pin A8 (CAM Y) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	1C (MAX GAIN)
Specified Value	$350 \pm 10 \text{ mV}$

Adjusting method:

- 1) Cover the lens with the ND filter 2.4 (1.0+1.0+0.4)
- 2) Set the adjustment address to 1C with the adjustment remote controller.
- 3) Change the adjustment data with the adjustment remote controller to set the Y signal level to $350 \pm 10 \text{ mV}$.
- 4) Change the adjustment address to store the adjustment data in the memory.

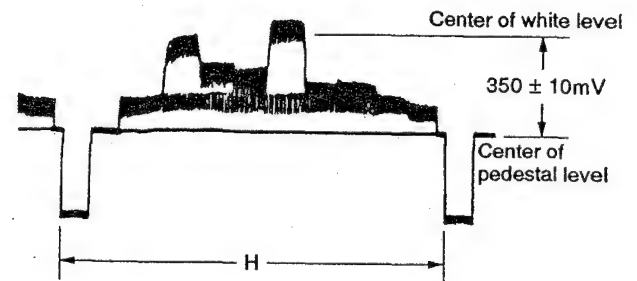


Fig. 4-24.

4 Camera Adjustments

FF60WIDE REPAIR MANUAL

4-2-20. Aperture Adjustment (VC-98P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin A8 (CAM Y) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	16 (APERTURE)
Specified Value	310 ± 10 mV

Adjusting method:

- 1) Set the adjustment address to 16 with the adjustment remote controller.
- 2) Focus the camera and set the aperture level (lower peak between green and white) to maximum.
- 3) Change the adjustment data to set the lower peak between green and white to 310 ± 10 mV above the pedestal level.
- 4) Change the adjustment address to store the adjustment data in the memory.

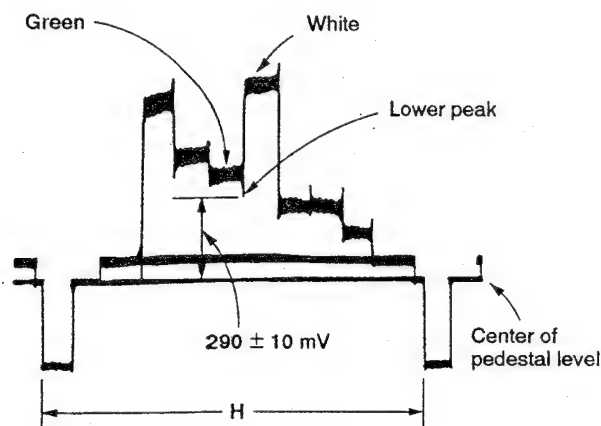


Fig. 4-25.

4-2-21. Chroma Level Adjustment (VC-98P Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin A1 (G OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	09 (C LEVEL)
Specified Value	320 ± 20 mV

Connections:

- 1) Connect Pin **B7** (OFFSET CONT) of the check point array to GND using a jumper wire.

Adjusting method:

- 1) Set the adjustment address to 09 with the adjustment remote controller.
- 2) Change the adjustment data with the adjustment remote controller to set the G OUT signal level to 320 ± 20 mV.
- 3) Change the adjustment address to store the adjustment data in the memory.

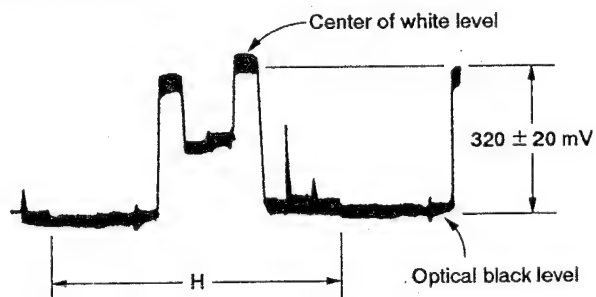


Fig. 4-26.

4 Camera Adjustments

4-2-22. Burst Phase Adjustment (Method Using Vectorscope)

Subject	All black (cover lens with black cap)
Measurement Point	VIDEO output terminal
Measuring Instrument	Vectorscope
Adjustment Address	11 (HUE CONT)
Specified Value	$135^\circ \pm 2^\circ$

Adjustment method:

- 1) Set the adjustment address to 11 with the adjustment remote controller.
- 2) Change the adjustment data so as to set the burst luminance point in the $135^\circ \pm 2^\circ$ position.
- 3) Change the adjustment address to store the adjustment data in the memory.
- 4) Perform Burst Level Adjustment.

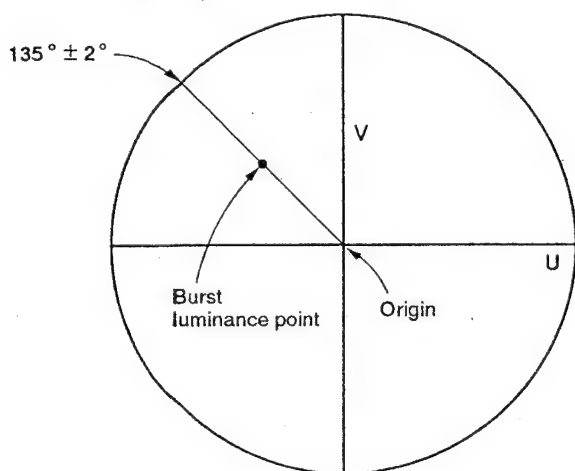


Fig. 4-27.

4-2-23. Burst Phase Adjustment (VC-98P Board) (Method Using Oscilloscope)

Subject	All black (cover lens with black cap)
Measurement Point	VIDEO output terminal
Measuring Instrument	Oscilloscope(Trigger slope:+)
Adjustment Address	11 (HUE CONT)
Specified Value	Burst phase should become a single line.

Adjusting method:

- 1) Set the adjustment address to 11 with the adjustment remote controller.
- 2) Change the adjustment data so as to turn the burst waveform into a single line.
- 3) Change the adjustment address to store the adjustment data in the memory.
- 4) Perform Burst Level Adjustment.

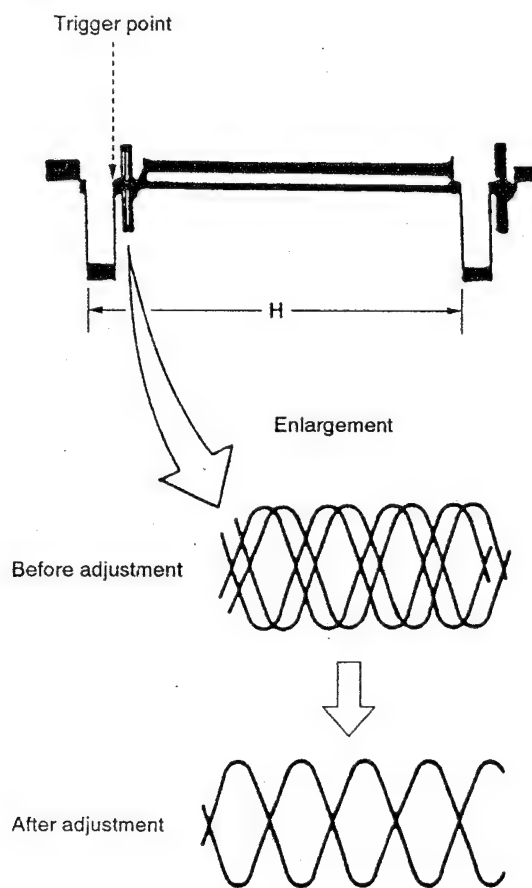


Fig. 4-28.

4 Camera Adjustments

FF60WIDE REPAIR MANUAL

4-2-24. Burst Level Adjustment (VC-98P Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin A10 (CAM C) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	10 (BURST LEVEL)
Specified Value	200 ± 5 mVp-p

Adjusting method:

- 1) Set the adjustment address to 10 with the adjustment remote controller.
- 2) Change the adjustment data with the adjustment remote controller to set the burst level to 200 ± 5 mVp-p.
- 3) Change the adjustment address to store the adjustment data in the memory.

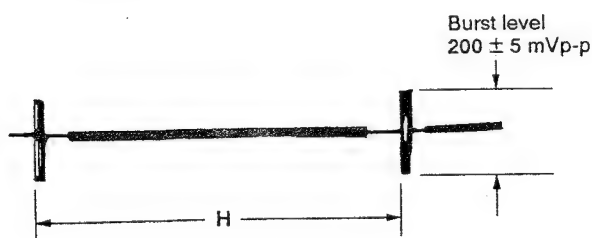


Fig. 4-29.

4-2-25. Indoor White Balance Adjustment (Method Using Vectorscope)

Subject	Color bar chart standard picture frame
Measurement Point	Video input/output terminals
Measuring Instrument	Vectorscope
Adjustment Address	0B (R GAIN) 0C (B GAIN)
Specified Value	The center of the white luminance point is within a circle with a diameter of 1 mm centered around the origin.

Adjusting method:

- 1) Set the adjustment address to 0B with the adjustment remote controller.
- 2) Change the adjustment data with the adjustment remote controller to match the white luminance point with the origin.
- 3) Set the adjustment address to 0C.
- 4) Change the adjustment data to match the white luminance point with the origin.
- 5) Repeat steps 1) through 4).
- 6) Change the adjustment address to store the adjustment data in the memory.

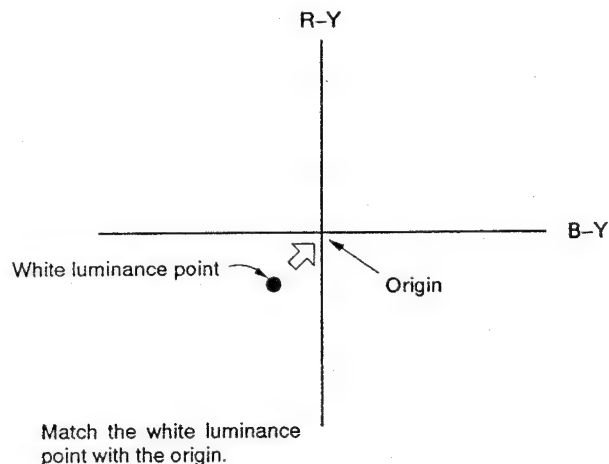


Fig. 4-30.

4 Camera Adjustments

4-2-26. Indoor White Balance Adjustment (Method Using Oscilloscope) (VC-98P Board)

Subject	Color bar chart standard picture frame
Measurement Point	CH1 (X): emitter of Q257 (B-Y) CH2 (Y): emitter of Q255 (R-Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	0B (R GAIN) 0C (B GAIN)
Specified Value	Move the white luminance point to the black luminance point.

Adjusting method:

- 1) Set the adjustment address to 0B with the adjustment remote controller.
- 2) Change the adjustment data with the adjustment remote controller to match the white luminance point with the black luminance point.
- 3) Set the adjustment address to 0C.
- 4) Change the adjustment data to match the white luminance point with the black luminance point.
- 5) Repeat steps 1) through 4).
- 6) Change the adjustment address to store the adjustment data in the memory.

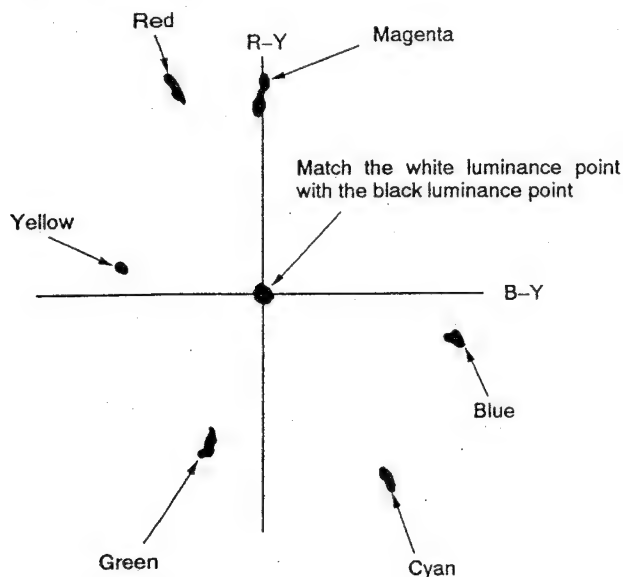


Fig. 4-31.

4-2-27. Color Reproduction Adjustment (Method Using Vectorscope)

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminals
Measuring Instrument	Vectorscope
Adjustment Address	05 (R-Y GAIN) 06 (B-Y GAIN) 07 (R-Y HUE) 08 (B-Y HUE)
Specified Value	All color luminance points are within color reproduction frame.

Note: Confirm that "Burst Level Adjustment" and "Indoor White Balance Adjustment" have been completed.

Adjusting method:

- 1) Adjust the phase and gain of the vectorscope to set the burst luminance points to the designated position on the color reproduction frame.
- 2) Change the adjustment data at the various adjustment address using the adjustment remote controller until all color luminance points are within the color reproduction frame.
- 3) Change the adjustment address to store the adjustment data in the memory.

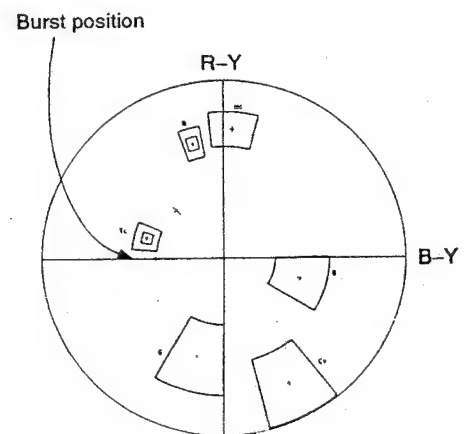


Fig. 4-32.

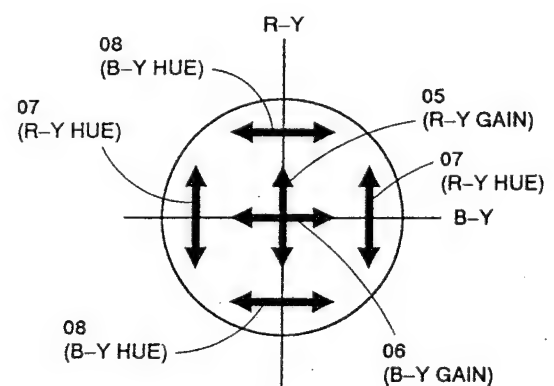


Fig. 4-33. Adjustment address and direction of luminance point movement

4 Camera Adjustments

FF60WIDE REPAIR MANUAL

4-2-28. Color Reproduction Adjustment (Method Using Oscilloscope)

A. Gain adjustment (VC-98P board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin A10 (CAM C) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	05 (R-Y GAIN) 06 (B-Y GAIN)
Specified Value	Red level: 387 ± 22 mVp-p Yellow level: 255 ± 16 mVp-p

Note: Confirm that "Indoor White Balance Adjustment" is completed.

Adjusting method:

- 1) Set the adjustment address to 06 with the adjustment remote controller and set the adjustment data to B0.
- 2) Set the adjustment address to 07 and set the adjustment data to C0.
- 3) Set the adjustment address to 08 and set the adjustment data to C0.
- 4) Set the adjustment address to 05 and change the adjustment data to set the chroma signal "red" level to 387 ± 22 mVp-p.
- 5) Set the adjustment address to 06 and change the adjustment data to set the chroma signal "yellow" level to 255 ± 16 mVp-p.
- 6) Repeat steps 4) and 5).
- 7) Change the adjustment address to store the adjustment data in the memory.
- 8) Perform "Hue Adjustment".

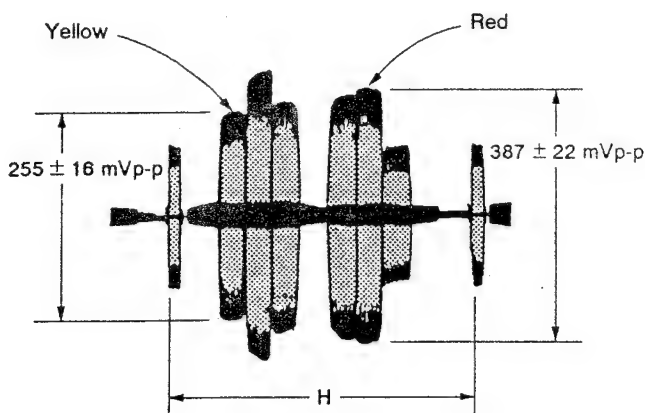


Fig. 4-34.

B. Hue adjustment (VC-98P board)

Subject	Color bar chart standard picture frame
Measurement Point	CH1 (X): emitter of Q257 (B-Y) CH2 (Y): emitter of Q255 (R-Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	07 (R-Y HUE) 08 (B-Y HUE)
Specified Value	Various color luminance points within color reproduction frame.

Note: Confirm that "Indoor White Balance Adjustment" is completed.

Adjusting method:

- 1) Match the "black" luminance point on the oscilloscope with the origin of the color reproduction frame.
- 2) Change the adjustment data at adjustment address 07 and 08 with the adjustment remote controller to bring the various color luminance points into the color reproduction frame.
- 3) Check the hue reproduced on the monitor TV and fine adjust the adjustment data at adjustment address 07 and 08 if necessary.
- 4) Set the oscilloscope to the normal mode and connect it to Pin **A10** of the check point array and confirm that the specified value of "A. Gain Adjustment" is satisfied. Change the data at the adjustment address 05 to 06 if the specified value is not met.
- 5) Change the adjustment address to store the adjustment data in the memory.

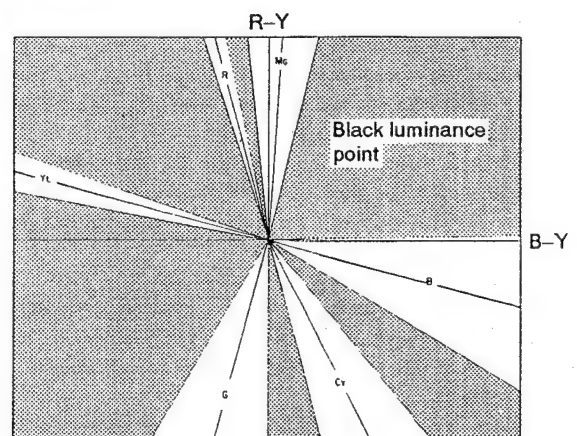


Fig. 4-35.

4-2-29. Auto-White Balance Adjustment

Note: Be sure to first perform "Preset Adjustment" followed by "Auto-White Balance Adjustment".

A. Preset adjustment (VC-98P board)

Subject	White pattern standard picture frame
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Note: 1) Perform preset adjustment after supplying power to the unit for at least 30 seconds.
2) When performing preset adjustment again, once OFF/ON the power.

Preparations:

- 1) Prepare a 1k Ω resistor for connecting Pin **B5** (AW ADJ) of the check point array and Pin ④ (CAM 5V) of W801.

Adjusting method:

- 1) Connect the Pin **B6** (CAM ADJ) of the check point array to the ground with a jumper wire after turning the power OFF and ON. Wait at least 30 seconds.
- 2) Select adjustment address 75 (AWB MODE) and set the adjustment data to E0. Wait at least 5 seconds.
- 3) Change the adjustment address to store the adjustment data in the memory. Wait at least 5 seconds.
- 4) Remove the jumper wire between Pin **B6** (CAM ADJ) of the check point array and the ground.
- 5) Connect Pin **B5** (AWB ADJ) of the check point array and Pin ④ of W801 (CAM 5V) with a 1k Ω resistor.
- 6) Connect Pin **B6** (CAM ADJ) of the check point array to the ground using a jumper wire.
- 7) Confirm that the data indicated (address 01) on the adjustment remote controller is changed.
- 8) Remove the jumper wire connected to Pin **B6** (CAM ADJ) of the check point array after elapse of one second or more.
- 9) Remove the 1k Ω resistor connected to Pin **B5** (AWB ADJ) of the check point array.
- 10) Connect Pin **B6** (CAM ADJ) of the check point array to the ground using a jumper wire.
- 11) Perform the following "Auto-white balance adjustment".

B. Auto-white balance adjustment (VC-98P board)

Note: Be sure to perform "Preset adjustment" before this adjustment.

Subject	White pattern standard picture frame	
Filter	Filter C14 for color temperature correction	
Measurement Point	CH1 (X): emitter of Q257 (B-Y) CH2 (Y): emitter of Q255 (R-Y)	
Measuring Instrument	Oscilloscope (X-Y Mode) ^{Note 1}	
Adjustment Address	01 (DELTA R) 5C (Ra) 02 (DELTA B) 5D (Rb) 3F (START R) 5E (Rc) 40 (START B) 5F (Ba) 44 (TOP SLP B) 60 (Bb) 4B (TOP UP) 61 (Bc) 4C (TOP DWN) 62 (R/B TOP) 54 (B UP LMT) 63 (R/B MDL) 55 (IN BTOP) 64 (R/B DWN) 56 (IN BMAX) 65 (B/R TOP) 57 (OUT BMIN) 66 (B/R MDL) 58 (OUT BDWN) 67 (B/R DWN) 5A (R OUTDOOR) 5B (B OUTDOOR)	
Specified Value	Line up the white luminance point with the black luminance point.	

Note: 1) Adjustment can be made in the same manner using a vectorscope.

Connect to VIDEO OUT terminal when the vectorscope is used.

2) All calculations in this section are made in decimal.

Adjustment method:

• Outdoor preset adjustment

- 1) Select the adjustment address 75 (AWB MODE) with the adjustment remote controller and set the adjustment data to 10.
- 2) Cover the lens with C14 filter.
- 3) Change the adjustment data at the adjustment address 01 and 02 alternately with the adjustment remote controller to match the white luminance point with the black luminance point. (Match the white luminance point with the origin when using the vectorscope.)
The adjustment data of adjustment address 01 will be C1 and the adjustment data of adjustment address 02 will be C2.

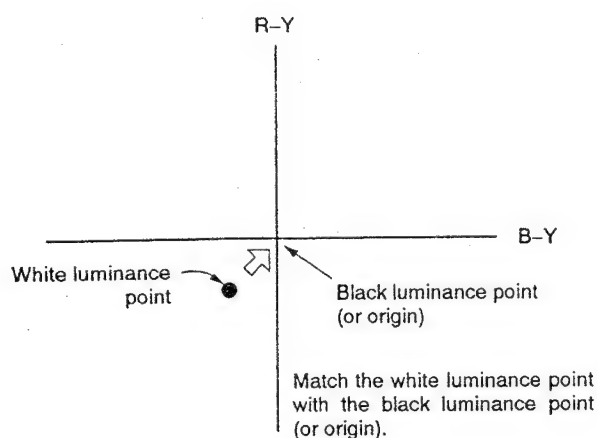


Fig. 4-36.

• Adjustment data input with the tables

- 4) When C2 value is from 3F through 55, obtain the adjustment data at the adjustment address 40, 54 to 58, 5B, 5F, 60 and 61 by Table 4-7., and enter the data into each address with the adjustment remote controller.
- 5) When C1 value is from 25 through 30, obtain the adjustment data at the adjustment address 3F, 5A, 5C, 5D and 5E with Table 4-8., and enter the data into each address with the adjustment remote controller.
- 6) When C1 value is from 25 through 30 and C2 value is from 3F through 55, obtain the adjustment data of the adjustment address 44, 4B, 4C and 62 to 67 with Table 4-9., and enter the data into each address with the adjustment remote controller.
- 7) When the data input to all adjustment address with the Tables has completed in 4) through 6), perform the adjustments after 15). If there is the adjustment address in which the data input is impossible, perform the following "Adjustment data input by calculation".

• Adjustment data input by calculation

- 8) Convert the adjustment data C1 to decimal to obtain C1', and the adjustment data C2 to decimal to obtain C2'.
(See Table 4-5. Hexadecimal — decimal conversion table)
- 9) Obtain R' and B' by the following formula.

$$R' = C1' + 2$$

$$B' = C2' + 4$$
- 10) Convert R' to hexadecimal and enter it into the adjustment address 5A.
- 11) Convert B' to hexadecimal and enter it into the adjustment address 5B.
- 12) Obtain X' and Y' by the following formula.

$$X' = 64 - R'$$

$$Y' = B' - 48$$
- 13) Obtain the adjustment data (decimal) by the following formula, convert to hexadecimal and enter the data into each adjustment address. (When converting, if there is a fraction under decimal, round it off.) Still, take down each adjustment data (decimal).
 Address 54

$$D54' = Y' \times 2 + 48$$

 Address 55

$$D55' = B'$$

 Address 56

$$D56' = Y' \times 0.84 + 48$$

 Address 57

$$D57' = D56'$$

 Address 58

$$D58' = Y' \times 0.3 + 48$$

 Address 5C

$$D5C' = 64 - X' \times 1.12$$

 Address 5D

$$D5D' = R'$$

 Address 5E

$$D5E' = 64 - X' \times 0.593$$

 Address 5F

$$D5F' = Y' \times 1.34 + 48$$

 Address 60

$$D60' = B'$$

 Address 61

$$D61' = Y' \times 0.467 + 48$$

4 Camera Adjustments

- 14) Obtain the adjustment data (decimal) by the following formula, convert to hexadecimal and enter the data into each adjustment address. (Round fractions off.)

Address 62

$$D_{62}' = (D_{5D}' - D_{5C}') \times 64 / (D_{5F}' - D_{60}')$$

Address 63

$$D_{63}' = (D_{5E}' - D_{5D}') \times 64 / (D_{60}' - D_{61}')$$

Address 64

$$D_{64}' = (64 - D_{5E}') \times 64 / (D_{61}' - 48)$$

Address 65

$$D_{65}' = (D_{5F}' - D_{60}') \times 16 / (D_{5D}' - D_{5C}')$$

Address 66

$$D_{66}' = (D_{60}' - D_{61}') \times 16 / (D_{5E}' - D_{5D}')$$

Address 67

$$D_{67}' = (D_{61}' - 48) \times 16 / (64 - D_{5E}')$$

Address 44

$$D_{44}' = D_{62}' \times 1.8$$

Address 4B

$$D_{4B}' = D_{5C}' \times 2 + 16 + (D_{5F}' \times D_{44}') / 64$$

Address 4C

$$D_{4C}' = D_{5C}' \times 2 - 14 + (D_{5F}' \times D_{44}') / 64$$

Address 3F

$$D_{3F}' = D_{5E}'$$

Address 40

$$D_{40}' = D_{61}'$$

- Auto-white balance adjustment

- 15) Check the C14 filter is covered with the lens.
- 16) Select the adjustment address 75, and enter the adjustment data F0.
- 17) Change alternately the adjustment data at the adjustment addresses 01 and 02 with the adjustment remote controller to match the white luminance point with the black luminance point.
(Match the white luminance with the origin when using the vectorscope.)
- 18) Select the adjustment address 75, and enter the adjustment data 00.
- 19) Change the adjustment address to store the adjustment data in the memory.

(Example)

If C2 is 49, the ④ line is the required adjustment data.

C2	Adjustment address									
	40	54	55	56	57	58	5B	5F	60	61
3F	39	56	43	40	40	36	43	49	43	39
40	39	58	44	41	41	36	44	4B	44	39
41	3A	5A	45	42	42	36	45	4C	45	3A
42	3A	5C	46	42	42	37	46	4D	46	3A
43	3B	5E	47	43	43	37	47	4F	47	3B
44	3B	60	48	44	44	37	48	50	48	3B
45	3C	62	49	45	45	38	49	52	49	3C
46	3C	64	4A	46	46	38	4A	53	4A	3C
47	3D	66	4B	47	47	38	4B	54	4B	3D
48	3D	68	4C	48	48	38	4C	56	4C	3D
49	3E	6A	4D	48	48	39	4D	57	4D	3E
4A	3E	6C	4E	49	49	39	4E	58	4E	3E
4B	3E	6E	4F	4A	4A	39	4F	5A	4F	3E
4C	3F	70	50	4B	4B	3A	50	5B	50	3F
4D	3F	72	51	4C	4C	3A	51	5C	51	3F
4E	40	74	52	4D	4D	3A	52	5E	52	40
4F	40	76	53	4D	4D	3B	53	5F	53	40
50	41	78	54	4E	4E	3B	54	60	54	41
51	41	7A	55	4F	4F	3B	55	62	55	41
52	42	7C	56	50	50	3B	56	63	56	42
53	42	7E	57	51	51	3C	57	64	57	42
54	43	80	58	52	52	3C	58	66	58	43
55	43	82	59	52	52	3C	59	67	59	43

←④

Table 4-7.

C1	Adjustment address				
	3F	5A	5C	5D	5E
25	31	27	24	27	31
26	32	28	25	28	32
27	32	29	26	29	32
28	33	2A	27	2A	33
29	34	2B	28	2B	34
2A	34	2C	2A	2C	34
2B	35	2D	2B	2D	35
2C	35	2E	2C	2E	35
2D	36	2F	2D	2F	36
2E	37	30	2E	30	37
2F	37	31	2F	31	37
30	38	32	30	32	38

Table 4-8.

4 Camera Adjustments

FF60WIDE REPAIR MANUAL

C1	C2	Adjustment address							
		44	4B	4C	62	63	64	65	66 67
25	3F	3A	9A	7C	20	40	6B	20	10 A
	40	31	92	74	1B	3A	6B	25	12 A
	41	31	93	75	1B	3A	60	25	12 B
	42	31	93	75	1B	35	60	25	13 B
	43	2B	8D	6F	18	35	57	2B	13 C
	44	2B	8E	70	18	31	57	2B	15 C
	45	26	89	6B	15	31	50	30	15 D
	46	26	8A	6C	15	2E	50	30	16 D
	47	26	8A	6C	15	2E	4A	30	16 E
	48	23	86	68	13	2B	4A	35	18 E
	49	23	87	69	13	2B	45	35	18 F
	4A	23	87	69	13	28	45	35	1A F
	4B	1F	84	66	11	26	45	3B	1B F
	4C	1F	85	67	11	26	40	3B	1B 10
	4D	1F	85	67	11	24	40	3B	1D 10
	4E	1D	82	64	10	24	3C	40	1D 11
	4F	1D	83	65	10	22	3C	40	1E 11
	50	1D	83	65	10	22	38	40	1E 12
	51	1B	81	63	F	20	38	45	20 12
	52	1B	81	63	F	20	35	45	20 13
	53	1B	81	63	F	1E	35	45	22 13
	54	19	7F	61	E	1E	33	4B	22 14
	55	19	80	62	E	1D	33	4B	23 14
26	3F	3A	9C	7E	20	40	64	20	10 A
	40	31	94	76	1B	3A	64	25	12 A
	41	31	95	77	1B	3A	5A	25	12 B
	42	31	95	77	1B	35	5A	25	13 B
	43	2B	8F	71	18	35	51	2B	13 D
	44	2B	90	72	18	31	51	2B	15 D
	45	26	8B	6D	15	31	4B	30	15 E
	46	26	8C	6E	15	2E	4B	30	16 E
	47	26	8C	6E	15	2E	45	30	16 F
	48	23	88	6A	13	2B	45	35	18 F
	49	23	89	6B	13	2B	40	35	18 10
	4A	23	89	6B	13	28	40	35	1A 10
	4B	1F	86	68	11	26	40	3B	1B 10
	4C	1F	87	69	11	26	3C	3B	1B 11
	4D	1F	87	69	11	24	3C	3B	1D 11
	4E	1D	84	66	10	24	38	40	1D 12
	4F	1D	85	67	10	22	38	40	1E 12
	50	1D	85	67	10	22	35	40	1E 13
	51	1B	83	65	F	20	35	45	20 13
	52	1B	83	65	F	20	32	45	20 15
	53	1B	83	65	F	1E	32	45	22 15
	54	19	81	63	E	1E	2F	4B	22 16
	55	19	82	64	E	1D	2F	4B	23 16
27	3F	3A	9E	80	20	3A	64	20	12 A
	40	31	96	78	1B	3A	64	25	14 A
	41	31	97	79	1B	3A	5A	25	14 B
	42	31	97	79	1B	30	5A	25	15 B
	43	2B	91	73	18	30	51	2B	15 D
	44	2B	92	74	18	2C	51	2B	17 D
	45	26	8D	6F	15	2C	4B	30	17 E
	46	26	8E	70	15	29	4B	30	19 E
	47	26	8E	70	15	29	45	30	19 F
	48	23	8A	6C	13	26	45	35	1B F
	49	23	8B	6D	13	26	40	35	1B 10
	4A	23	8B	6D	13	24	40	35	1C 10
	4B	1F	88	6A	11	22	40	3B	1E 10
	4C	1F	89	6B	11	22	3C	3B	1E 11
	4D	1F	89	6B	11	20	3C	3B	20 11
	4E	1D	86	68	10	20	38	40	20 12
	4F	1D	87	69	10	1E	38	40	22 12
	50	1D	87	69	10	1E	35	40	22 13
	51	1B	85	67	F	1D	35	45	24 13
	52	1B	85	67	F	1D	32	45	24 15
	53	1B	85	67	F	1B	32	45	25 15
	54	19	83	65	E	1B	2F	4B	25 16
	55	19	84	66	E	1A	2F	4B	27 16
28	3F	3A	A0	82	20	3A	5C	20	12 B
	40	31	98	7A	1B	3A	5C	25	14 B
	41	31	99	7B	1B	3A	53	25	14 C
	42	31	99	7B	1B	30	53	25	15 C
	43	2B	93	75	18	30	4C	2B	15 E
	44	2B	94	76	18	2C	4C	2B	17 E
	45	26	8F	71	15	2C	45	30	17 F
	46	26	90	72	15	29	45	30	19 F
	47	26	90	72	15	29	40	30	19 10
	48	23	8C	6E	13	26	40	35	1B 10
	49	23	8D	6F	13	26	3B	35	1B 11
	4A	23	8D	6F	13	24	3B	35	1C 11
	4B	1F	8A	6C	11	22	3B	3B	1E 11
	4C	1F	8B	6D	11	22	37	3B	1E 12
	4D	1F	8B	6D	11	20	37	3B	20 12
	4E	1D	88	6A	10	20	34	40	20 14
	4F	1D	89	6B	10	1E	34	40	22 14
	50	1D	89	6B	10	1E	31	40	22 15
	51	1B	87	69	F	1D	31	45	24 15
	52	1B	87	69	F	1D	2E	45	24 16
	53	1B	87	69	F	1B	2E	45	25 16
	54	19	85	67	E	1B	2C	4B	25 17
	55	19	86	68	E	1A	2C	4B	27 17
29	3F	3A	A2	84	20	3A	55	20	12 C
	40	31	9A	7C	1B	3A	55	25	14 C
	41	31	9B	7D	1B	3A	4D	25	14 D
	42	31	9B	7D	1B	30	4D	25	15 D
	43	2B	95	77	18	30	46	2B	15 F
	44	2B	96	78	18	2C	46	2B	17 F
	45	26	91	73	15	2C	40	30	17 10
	46	26	92	74	15	29	40	30	19 10
	47	26	92	74	15	29	3B	30	19 11
	48	23	9E	70	13	26	3B	35	1B 11
	49	23	8F	71	13	26	37	35	1B 13
	4A	23	8F	71	13	24	37	35	1C 13
	4B	1F	8C	6E	11	22	37	3B	1E 13
	4C	1F	8D	6F	11	22	33	3B	1E 14
	4D	1F	8D	6F	11	20	33	3B	20 14
	4E	1D	8A	6C	10	20	30	40	20 15
	4F	1D	8B	6D	10	1E	30	40	22 15
	50	1D	8B	6D	10	1E	2D	40	22 17
	51	1B	89	6B	F	1D	2D	45	24 17
	52	1B	89	6B	F	1D	2B	45	24 18
	53	1B	89	6B	F	1B	2B	45	25 18
	54	19	87	69	E	1B	2B	4B	25 19
	55	19	88	6A	E	1A	2B	4B	27 19
2A	3F	26	90	72	15	33	55	30	14 C
	40	21	8B	6D	12	2F	55	38	16 C
	41	21	8B	6D	12	2F	4D	38	16 D
	42	21	8C	6E	12	2B	4D	38	18 D
	43	1D	87	69	10	2B	46	40	18 F
	44	1D	88	6A	10	27	46	40	1A F
	45	1A	85	67	E	27	40	48	1A 10
	46	1A	85	67	E	25	40	48	1C 10
	47	1A	86	68	E	25	3B	48	1C 11
	48	17	83	65	D	22	3B	50	1E 11
	49	17	83	65	D	22	37	50	1E 13
	4A	17	84	66	D	20	37	50	20 13
	4B	15	81	63	C	1E	37	58	22 13
	4C	15	82	64	C	1E	33	58	22 14
	4D	15	82	64	C	1C	33	58	24 14
	4E	13	80	62	B	1C	30	60	24 15
	4F	13	80	62	B	1B	30	60	26 15
	50	13	81	63	B	1B	2D	60	26 17
	51	12	7F	61	A	1A	2D	68	28 17
	52	12	7F	61	A	1A	2B	68	28 18
	53	12	80	62	A	18	2B	68	2A 18
	54	10	7E	60	9	18	28	70	2A 19
	55	10	7E	60	9	17	28	70	2C 19
2B	3F	26	92	74	15	33	4E	30	14 D
	40	21	8D	6F	12	2F	4E	38	16 D
	41	21	8D	6F	12	2F	46	38	16 F
	42	21	8E	70	12	2B	46	38	18 F
	43	1D	89	6B	10	2B	40	40	18 10
	44	1D	8A	6C	10	27	40	40	1A 10
	45	1A	87	69	E	27	3B	48	1A 11
	46	1A	87	69	E	25	3B	48	1C 11
	47	1A	88	6A	E	25	36	48	1C 13
	48	17	85	67	D	22	36	50	1E 13
	49	17	85	67	D	22	32	50	1E 14
	4A	17	86	68	D	20	32	50	20 14
	4B	15	83	65	C	1E	32	58	22 14
	4C	15	84	66	C	1E	2F	58	22 16
	4D	15	84	66	C	1C	2F		

4 Camera Adjustments

4-2-30. Auto-White Balance Check (VC-98P Board)

C1	C2	Adjustment address									
		44	4B	4C	62	63	64	65	66	67	
2E	3F	26	98	7A	15	2D	40	30	17	10	
	40	21	93	75	12	29	40	38	19	10	
	41	21	93	75	12	29	3A	38	19	12	
	42	21	94	76	12	25	3A	38	1B	12	
	43	1D	8F	71	10	25	34	40	1B	14	
	44	1D	90	72	10	22	34	40	1E	14	
	45	1A	8D	6F	E	22	30	48	1E	15	
	46	1A	8D	6F	E	20	30	48	20	15	
	47	1A	8E	70	E	20	2C	48	20	17	
	48	17	8B	6D	D	1E	2C	50	22	17	
	49	17	8B	6D	D	1E	29	50	22	19	
	4A	17	8C	6E	D	1C	29	50	25	19	
	4B	15	89	6B	C	1A	29	58	27	19	
	4C	15	8A	6C	C	1A	26	58	27	1B	
	4D	15	8A	6C	C	19	26	58	29	1B	
	4E	13	88	6A	B	19	24	60	29	1C	
	4F	13	88	6A	B	18	24	60	2B	1C	
	50	13	89	6B	B	18	22	60	2B	1E	
	51	12	87	69	A	16	22	68	2E	1E	
	52	12	87	69	A	16	20	68	2E	20	
	53	12	88	6A	A	15	20	68	30	20	
	54	10	86	68	9	15	1E	70	30	22	
	55	10	86	68	9	14	1E	70	32	22	
2F	3F	26	9A	7C	15	26	40	30	1B	10	
	40	21	95	77	12	23	40	38	1D	10	
	41	21	95	77	12	23	3A	38	1D	12	
	42	21	96	78	12	20	3A	38	20	12	
	43	1D	91	73	10	20	34	40	20	14	
	44	1D	92	74	10	1E	34	40	23	14	
	45	1A	8F	71	E	1E	30	48	23	15	
	46	1A	8F	71	E	1B	30	48	25	15	
	47	1A	90	72	E	1B	2C	48	25	17	
	48	17	8D	6F	D	1A	2C	50	28	17	
	49	17	8D	6F	D	1A	29	50	28	19	
	4A	17	8E	70	D	18	29	50	2B	19	
	4B	15	8B	6D	C	17	29	58	2D	19	
	4C	15	8C	6E	C	17	26	58	2D	1B	
	4D	15	8C	6E	C	15	26	58	30	1B	
	4E	13	8A	6C	B	15	24	60	30	1C	
	4F	13	8A	6C	B	14	24	60	33	1C	
	50	13	8B	6D	B	14	22	60	33	1E	
	51	12	89	6B	A	13	22	68	35	1E	
	52	12	89	6B	A	13	20	68	35	20	
	53	12	8A	6C	A	12	20	68	38	20	
	54	10	88	6A	9	12	1E	70	38	22	
	55	10	88	6A	9	11	1E	70	3B	22	
30	3F	26	9C	7E	15	26	39	30	1B	12	
	40	21	97	79	12	23	39	38	1D	12	
	41	21	97	79	12	23	33	38	1D	14	
	42	21	98	7A	12	20	33	38	20	14	
	43	1D	93	75	10	20	2F	40	20	16	
	44	1D	94	76	10	1E	2F	40	23	16	
	45	1A	91	73	E	1E	2B	48	23	18	
	46	1A	91	73	E	1B	2B	48	25	18	
	47	1A	92	74	E	1B	27	48	25	1A	
	48	17	8F	71	D	1A	27	50	28	1A	
	49	17	8F	71	D	1A	25	50	28	1C	
	4A	17	90	72	D	18	25	50	2B	1C	
	4B	15	8D	6F	C	17	25	58	2D	1C	
	4C	15	8E	70	C	17	22	58	2D	1E	
	4D	15	8E	70	C	15	22	58	30	1E	
	4E	13	8C	6E	B	15	20	60	30	20	
	4F	13	8C	6E	B	14	20	60	33	20	
	50	13	8D	6F	B	14	1E	60	33	22	
	51	12	8B	6D	A	13	1E	68	35	22	
	52	12	8B	6D	A	13	1C	68	35	24	
	53	12	8C	6E	A	12	1C	68	38	24	
	54	10	8A	6C	9	12	1B	70	38	26	
	55	10	8A	6C	9	11	1B	70	3B	26	

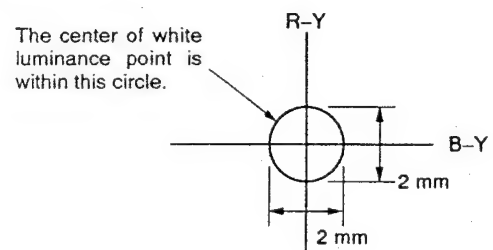
Table 4-9. (2)

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	When vectorscope used: video output terminals
Measuring Instrument	When oscilloscope used: CH1 (X): emitter of Q257 (B-Y) CH2 (Y): emitter of Q255 (R-Y)
Specified Value	See Fig. 4-35.

Checking method:

- 1) Select adjustment address 75 with the adjustment remote controller and enter adjustment data of F0. (Auto white balance tracking zone invalidity/all area discrimination mode setting)
- 2) Change the adjustment address to store the adjustment data in the memory.
- 3) Remove the jumper wire between Pin [B6] of the check point array and the ground.
(Set the EVR adjustment mode to OFF.)
- 4) Confirm that the white luminance point matches with the origin (or the black luminance point) when shooting the white pattern without the C14 filter.
- 5) Cover the lens with the C14 filter and confirm that the white luminance point matches with the origin (or the black luminance point) in about 2 seconds.
- 6) Connect Pin [B6] of the check point array to the ground with the jumper wire.
(Set the EVR adjustment mode to ON.)
- 7) Select the adjustment address 75 with the adjustment remote controller and the adjustment data of 00.
(Release auto-white balance check mode)
- 8) Change the adjustment address to store the adjustment data in the memory.

[When using vectorscope]



[When using oscilloscope]

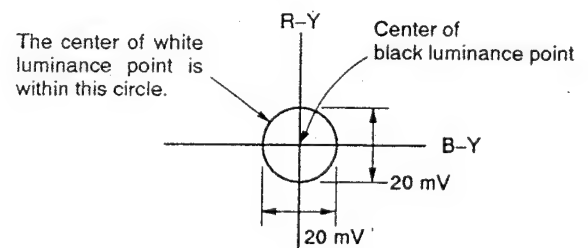


Fig. 4-37.

4 Camera Adjustments

4-2-31. Focus Motor Speed Adjustment (VC-98P Board)

Subject	Arbitrary
Measurement Point	CN304
Measuring Instrument	AF microprocessor data reading jig
Adjustment Address	24 (FOCUS SPEED)
Specified Value	Average value of data indicated on jig = 6.0 ± 0.5

Remarks: The rotation time from the close extreme to far extreme of the focus ring should be approximately 2.1 seconds after completion of adjustment.

Adjusting method:

- 1) Set the auto-focus to ON.
- 2) Select adjustment address 25 with the adjustment remote controller and enter adjustment data of 01. (Sets hunching mode)
- 3) Set the adjustment data so that the indication on the AF microprocessor data reading jig is 06 while the ring is rotating.
- 5) Press the HOLD button of the AF microprocessor data reading jig while the focus ring is rotating to read the indication value.
- 6) Repeat step 5) ten times and obtain the average value.
Specified value = 6.0 ± 0.5
Repeat steps 4) and 5) if the specified value is not satisfied.
- 7) Set the adjustment address to 25 and set the adjustment data to 00. (Releases hunching mode)
- 8) Change the adjustment address to store the adjustment data in the memory

4-2-32. Macro Area Adjustment (VC-98P Board)

Subject	Arbitrary
Measurement Point	CN304
Measuring Instrument	AF microprocessor data reading jig
Adjustment Address	27 (MACRO)
Specified Value	(Value at zoom ring WIDE position) -1

Adjusting method:

- 1) Referring Fig. 4-10., rotate the zoom ring to the WIDE-end position manually while pressing the point A of the macro stopper on the zoom lens. (It is easier to rotate the gear of the zoom lens.
When the zoom ring reached to the end, release the macro stopper.
- 2) Select adjustment address 25 with the adjustment remote controller and set the adjustment data to 03. (Sets zoom position indication mode)
- 3) Read the data indicated on the AF microprocessor data reading jig. (Data in the range of 06 to 0E is displayed if normal.)
- 4) Change the adjustment address to 27.
- 5) Subtract 1 from the data read from the jig and enter as the adjustment data. (See Table 4-5. Hexadecimal — decimal conversion table)
- 6) Press the TELE side of the zoom ring and set the zoom ring to the TELE position.
- 7) Confirm that the indication on the AF microprocessor data reading jig is 3D to 3F.
- 8) Change the adjustment address to 25 and set the adjustment data to 00. (Releases zoom position indication mode)
- 9) Change the adjustment address to store the adjustment data in the memory.

4 Camera Adjustments

4-2-33. Auto-Focus Adjustment (VC-98P Board)

A. Adjustment in all black pattern

Subject	All black (cover lens with black cap)
Measurement Point	CN304
Measuring Instrument	AF microprocessor data reading jig
Adjustment Address	33 (FHB), 35 (AGC B)

Adjusting method:

- 1) Set the auto-focus to OFF with the focus button.
- 2) Select adjustment address 25 with the adjustment remote controller and set the adjustment data to FF.
(Set the auto-focus filter FH)
- 3) Read the data (FH B) indicated on the AF microprocessor data reading jig and enter adjustment address 33. (FH B will be 00 to 06.)
- 4) Select adjustment address 25 and set the adjustment data to FD. (Set the auto-focus filter to FA position.)
- 5) Confirm the data (FA B) indicated the AF microprocessor data reading jig is 00 to 11.)
- 6) Select adjustment address 25 and set the adjustment data to 0B. (Auto-focus AGC adjustment mode)
- 7) Read the data (AGC B) indicated on the AF microprocessor data reading jig and enter adjustment address 35.
- 8) Perform "Adjustment in all white pattern".

B. Adjustment in all white pattern

Subject	All white pattern ^{Note}
Measurement Point	CN304
Measuring Instrument	AF microprocessor data reading jig
Adjustment Address	32 (FHW), 34 (AGC W)

Note: Place the pattern box without chart in the front of the camera. Set the zoom lever to TELE position and shoots the pattern box. Confirm that the surface of the pattern box is clean.

Adjusting method:

- 1) Select adjustment address 25 with the adjustment remote controller and enter adjustment data of FF.
- 2) Read the data (FH W) indicated on the AF microprocessor data reading jig and enter adjustment address 32. (FH W should be 00 or 01.)
- 3) Select adjustment address 25 and set the adjustment data to FD.
- 4) Confirm that the data (FA W) indicated on the AF microprocessor data reading jig is 00 to 03.
- 5) Select adjustment address 25 and set the adjustment data to 0B.
- 6) Read the data (AGC W) indicated on the AF microprocessor data reading jig and enter adjustment address 34.
- 7) Select adjustment address 25 and enter adjustment data of 00.
- 8) Change the adjustment address to store the adjustment data in the memory.

4-2-34. Auto-Focus Check

Note: Perform adjustment with the EVF (electrical viewfinder) attached.

Subject	Siemens star (Position 1.5 m from the front of the lens reference plane (CCD imager))
---------	---

Checking method:

- 1) Place the Siemens star 1.5 m from the front of the lens reference plane (See Fig. 4-2.).
- 2) Set the zoom to the TELE position and set the auto-focus to ON with FOCUS button.
- 3) Adjust the position of the camera so that center of the Siemens star is lined up with the center of the monitor screen on the monitor TV screen.
- 4) To open the iris, decrease the illumination of the Siemens star chart to the range in which the normal image without the noise can be obtained.
(Or cover lens with the ND filter.)
- 5) Set the auto-focus to OFF with FOCUS button.
- 6) Manually rotate the focus ring to set the focus. Confirm that the focus mark is inside the range shown in Fig. 4-36. at this time.
Perform "Flange Back Adjustment" if the specification is not satisfied.
- 7) Turn the focus ring to the close extreme (1.1 m).
- 8) Set the auto-focus to ON with FOCUS button.
- 9) Confirm that there is focusing within two seconds and a sharp image can be obtained.
- 10) Set the auto-focus to OFF and turn the focus ring to the far extreme (∞).
- 12) Confirm that there is focusing within three seconds and a sharp image can be obtained.

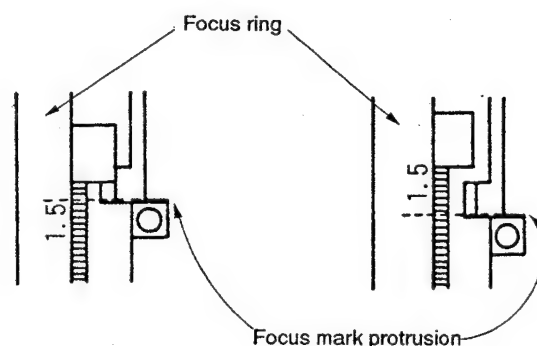


Fig. 4-38.

4 Camera Adjustments

4-2-35. Power Zoom Speed Adjustment

Subject	Arbitrary
Measuring Instrument	Stop watch
Adjustment Address	22 (ZOOM L SPD) 23 (ZOOM H SPD)
Specified Value	Low speed: 10.0 ± 2.5 sec. High speed: 5.5 ± 1.3 sec.

- Note:** 1) In the adjustment mode, the zoom button of the remote controller does not function.
2) Perform adjustment in both low and high speed.

Adjusting method:

- 1) Set the zoom to the TELE-end position.
- 2) Press the WIDE side of the zoom button lightly (in low speed) or strong (in high speed) and measure how long it takes to rotate from TELE-end to WIDE-end.
- 3) Set the zoom to the WIDE-end position.
- 4) Press the WIDE side of the zoom button lightly (in low speed) or strong (in high speed) and measure how long it takes to rotate from TELE-end to WIDE-end.
- 5) If the specified value is not obtained in the step 2) or 3), change the adjustment address 22 (in low speed) or 23 (in high speed) with the adjustment remote controller and repeat steps 1) through 4).

Note: If the adjustment data is too small, the zoom motor will not rotate.

Adjustment data	Zoom speed
Large ↓ Small	Fast ↓ Slow

Table 4-10.

4-3. CAMERA REC SYSTEM ADJUSTMENTS

4-3-1. VCO Adjustment (VC-98P Board)

Subject	Arbitrary
Measurement Point	Pin ⑦ of IC141
Measuring Instrument	Digital voltmeter
Adjusting Element	CT141
Specified Value	2.8 ± 0.2 Vdc

Adjustment method:

- 1) Set to 2.8 ± 0.2 Vdc with CT141.

4-3-2. Chroma Input Level Adjustment (VC-98P Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin ① of IC503
Measuring Instrument	Oscilloscope
Adjusting Element	RV501
Specified Value	420 ± 20 mVp-p

Adjusting method:

- 1) Adjust the burst signal level to 420 ± 20 mVp-p using RV501.

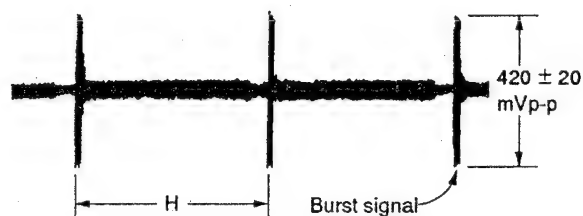


Fig. 4-39. Chroma input level adjustment

4-3-3. Recording Chroma RF Level Adjustment (VC-98P Board)

Subject	All black (cover lens with black cap)
Mode	Camera recording
Measurement Point	TP212 (emitter of Q241) on VS-72 board check land
Measuring Instrument	Oscilloscope
Adjusting Element	RV504
Specified Value	250 ± 10 mVp-p

Adjusting method:

- 1) Adjust the burst signal level to 250 ± 10 mVp-p using RV504.

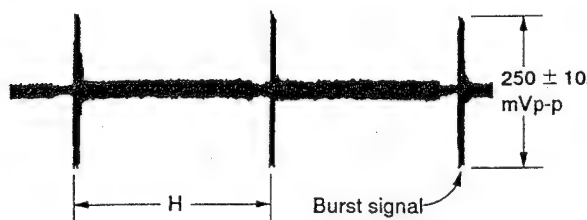


Fig. 4-40. Recording chroma RF level adjustment

4-3-4. Y FM Carrier Frequency Adjustment (VC-98P Board)

Subject	Arbitrary
Mode	Camera recording
Measurement Point	TP11 (emitter of Q237) on VS-72 board check land
Measuring Instrument	Frequency counter
Adjusting Element	RV502
Specified Value	4.29 ± 0.04 MHz

Connections:

- 1) Connect the Pin **A8** (CAM Y) of the check point array to Pin **④** (CAM 5V) of W801 with a jumper wire.

Adjusting method:

- 1) Adjust to 4.29 ± 0.04 MHz with RV502
- 2) Be sure to perform deviation adjustment.

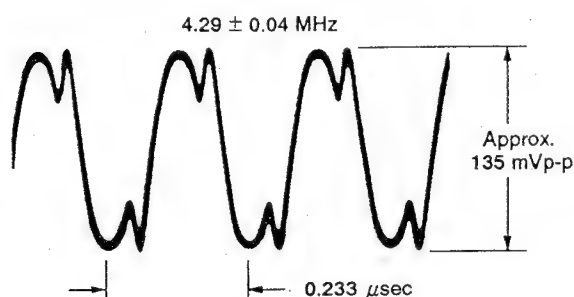


Fig. 4-41. Y FM carrier frequency adjustment

4-3-5. Y FM Deviation Adjustment (VC-98P Board)

Subject	All black (cover lens with black cap)
Mode	Camera recording and playback
Signal	All black signal recorded with the camera. Alignment tape for checking operation (WR5-4CSP) Color bar section
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope
Adjusting Element	RV503
Specified Value	(Horizontal sync signal level of alignment tape) ± 0.015 V

- Note:** 1) Confirm that "6-5-8. PB Y Level 1 Adjustment", "6-5-9. PB Y Level 2 Adjustment" and "6-5-10. Y FM Carrier Frequency Adjustment" of the video block adjustment should be completed.
- 2) Terminate the video input/output terminal (J901) at 75Ω .

Adjusting method:

- 1) Play the color bar section of the alignment tape (WR5-4CSP) and make a note of the horizontal sync signal level (approx. 0.286V) at this time.
- 2) Record the all black subject with camera.
- 3) Playback the tape recorded in step 2).
- 4) Confirm that the horizontal sync signal level at this time is the same as the level noted in step 1).

Specified Value:

(Horizontal sync signal level of alignment tape) ± 0.015 V

- 5) If the specified value is not satisfied, repeat 2) through 4) after turning RV503 in the following manner.

	Rotation direction of RV503
When smaller than specified value	Counterclockwise (⌚)
When larger than specified value	Clockwise (⌚)

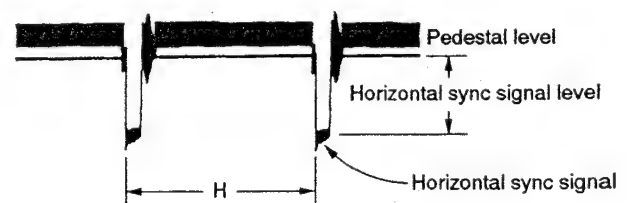


Fig. 4-42. Y FM deviation adjustment

4 Camera Adjustments

FF60WIDE REPAIR MANUAL

4-3-6. REC Y Level Adjustment (VC-98P Board)

Subject	All black (cover lens with black cap)
Mode	Camera recording
Measurement Point	TP161 (emitter of Q237) on VS-72 board check land
Measuring Instrument	Oscilloscope
Adjusting Element	RV505
Specified Value	135 ± 10 mVp-p

Adjusting method:

- 1) Adjust RV505 to 135 ± 10 mVp-p.

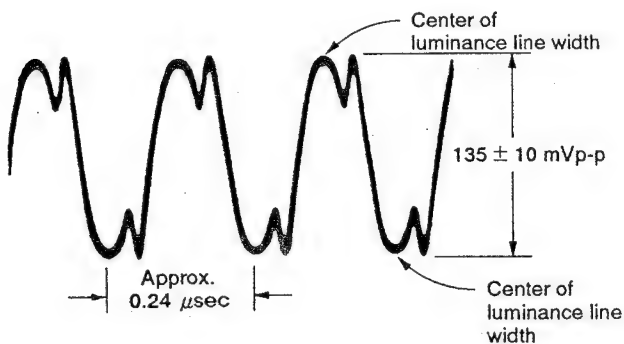


Fig. 4-43. REC Y level adjustment

4-4. DIGITAL TITLER SYSTEM ADJUSTMENTS

4-4-1. Titler PLL Adjustment (TI-37P Board)

Subject	Arbitrary
Measurement Point	TP804
Measuring Instrument	Digital voltmeter
Adjusting Element	CT801
Specified Value	2.42 ± 0.1 Vdc

Connection:

- 1) Connect TP801 (PLL ADJ: Pin ⑥ of IC803) TP803 (VDD) with a jumper wire.

Adjusting method:

- 1) Adjust CT801 to 2.42 ± 0.1 Vdc.

4-4-2. Character Generator for Adjustment (TI-37P Board)

Subject	E-E
Mode	No signal
Measurement Point	Pin ⑦ of IC802 (TP806)
Measuring Instrument	Frequency counter
Adjusting Element	CT802
Specified Value	6.38 ± 0.05 MHz

Connection:

- 1) Connect TP805 (Pin ② of IC802 and TP803 (VDD) with a jumper wire.

Adjustment method:

- 1) Adjust CT802 to 6.38 ± 0.05 MHz.

4 Camera Adjustments

4-4-3. Title A/D Level Adjustment

Subject	Color bar chart standard picture frame
Measurement Point	Confirmed on monitor TV
Measuring Instrument	
Adjustment Address	21 (TITLE A/D)
Specified Value	See Fig. 4-44.

Note: Make sure that "Y Level Adjustment" is completed.

Adjusting method:

- 1) Select adjustment address 21 with the adjustment remote controller.
- 2) Press the MEMORY button (S760 on CF-0 board).
- 3) Confirm that blue and black portions are superimposed and become white, and confirm that red and magenta portions are not changed.
- 4) If this condition is not satisfied, change the adjustment data with the adjustment remote controller and repeat steps 2) and 3).
- 5) Change the adjustment address to store the adjustment data in the memory.

The shaded portion should be turned to white.

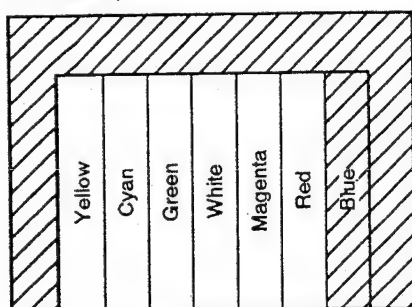


Fig. 4-44.

4-4-4. Title Y Level Adjustment (VC-98P Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin A8 (CAM Y) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	0A (TITLE Y)
Specified Value	570 ± 80 mV

Note: Connect the EVF (electronic viewfinder) for adjustment.

Adjusting method:

- 1) Cover the lens with the black cap and press the MEMORY button (S760 on CF-0 board).
- 2) Confirm that "WHITE" characters are displayed in the EVF.
- 3) Select adjustment address 0A with the adjustment remote controller.
- 4) Change the adjustment data with the adjustment remote controller to set the Y signal level to 570 ± 80 mV.
- 5) Change the adjustment address to store the adjustment data in the memory.

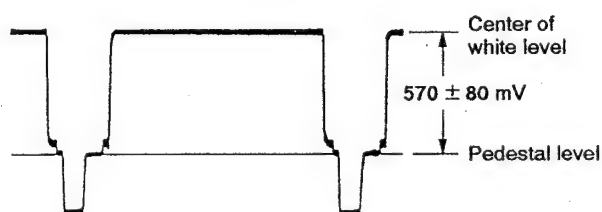


Fig. 4-45.

4 Camera Adjustments

FF60WIDE REPAIR MANUAL

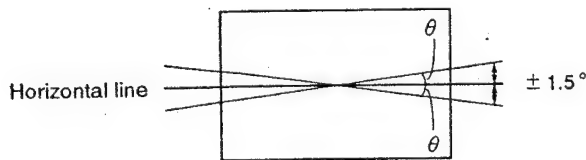
4-5. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

4-5-1. Horizontal Tilt Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-4CSP) Monoscope portion
Specified Value	See Fig. 4-46.

Adjusting method:

- 1) Adjust optimum brightness on the CRT with RV954 (BRIGHT).
- 2) Loosen the DY (deflection yoke) tightening nut.
- 3) Make the picture horizontal by rotating DY.
- 4) Retighten the DY tightening nut.
(Do not tighten excessively.)



Specified value: Image orientation to be within $\pm 1.5^\circ$ of horizontal line.

Fig. 4-46.

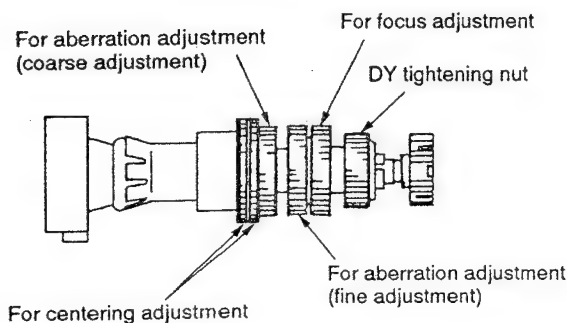


Fig. 4-47.

4-5-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-4CSP) Monoscope portion
Specified Value	See Fig. 4-48

Adjusting method:

- 1) Turn the centering adjustment rings to make margin even at right, left, upper and lower of the screen. (See Fig. 4-47.)

Note: Since the centering position is affected by the earth magnetism, turn the equipment over 360° horizontally, and make adjustments at the orientation that exhibits median displacements of the image.

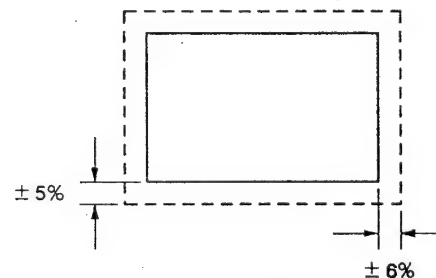


Fig. 4-48.

4-5-3. Focus Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-4CSP) Monoscope portion

Adjusting method:

- 1) Adjust for optimum focus using the focus ring.
(See Fig. 4-47.)

4 Camera Adjustments

4-5-4. Aberration Adjustment

Mode	E-E
Signal	Dot pattern
Specified Value	See Fig. 4-49.

Adjusting method:

- 1) Use the aberration adjustment rings to adjust any trailing dots to under 2 times the dot diameter and any fan shaped aberrations to within the dot diameter.
- 2) If off center, repeat the "Centering Adjustment".

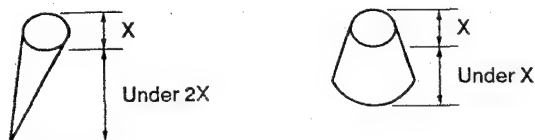


Fig. 4-49.

4-5-5. Horizontal Oscillation Frequency Adjustment (VF-40P Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-4CSP)
Measurement Point	Positive terminal of C954
Measuring Instrument	Digital voltmeter or oscilloscope (DC range)
Adjusting Element	RV951
Specified Value	2.60 ± 0.05 Vdc

Adjusting method:

- 1) Adjust RV901 to 2.60 ± 0.05 Vdc.

4-5-6. Horizontal Amplitude Adjustment (VF-40P Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-4CSP) Monoscope portion
Adjusting Element	C961
Specified Value	$6 \pm 3\%$

Adjusting method:

- 1) By turning RV952, align upper and lower edges of the monoscope image with those of the screen.
- 2) By turning RV954, attain a normal brightness level.
- 3) To achieve $6 \pm 3\%$ horizontal overscans (right and left total), short-circuit or open the pattern (A) for H size adjusting capacitor (C961). (See Fig. 4-51.)

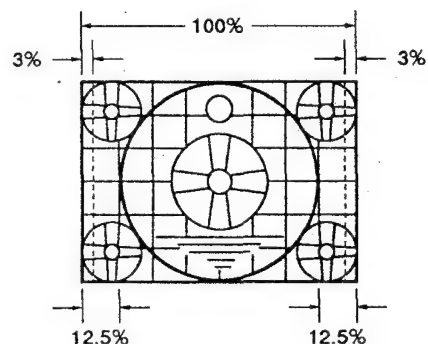
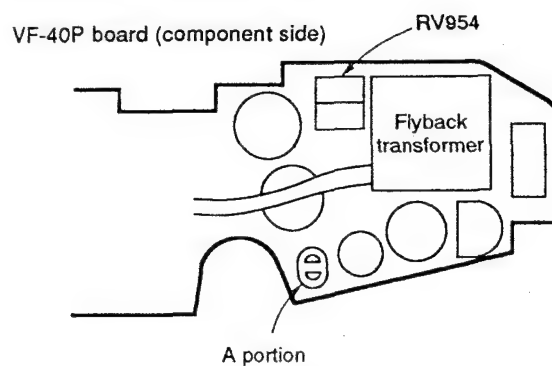


Fig. 4-50.



A section	H size
Open	Small
Short	Large

Fig. 4-51.

4 Camera Adjustments

FF60WIDE REPAIR MANUAL

4-5-7. Vertical Amplitude Adjustment (VF-40P Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-4CSP) Monoscope portion
Adjusting Element	RV952
Specified Value	$5 \pm 3\%$

Adjusting method:

- 1) By turning RV952, adjust for $5 \pm 3\%$ (upper and lower total) vertical overscan.

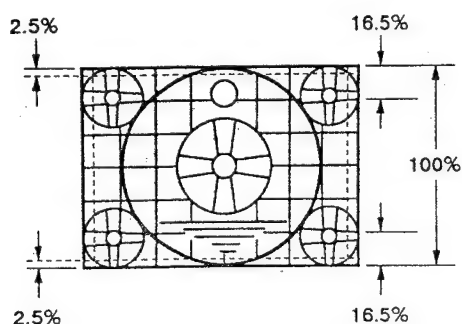


Fig. 4-52.

4-5-8. Brightness, Contrast Adjustments (VF-40P Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-4CSP) Monoscope portion
Adjusting Element	Brightness: RV954 Contrast: RV953

Adjusting method:

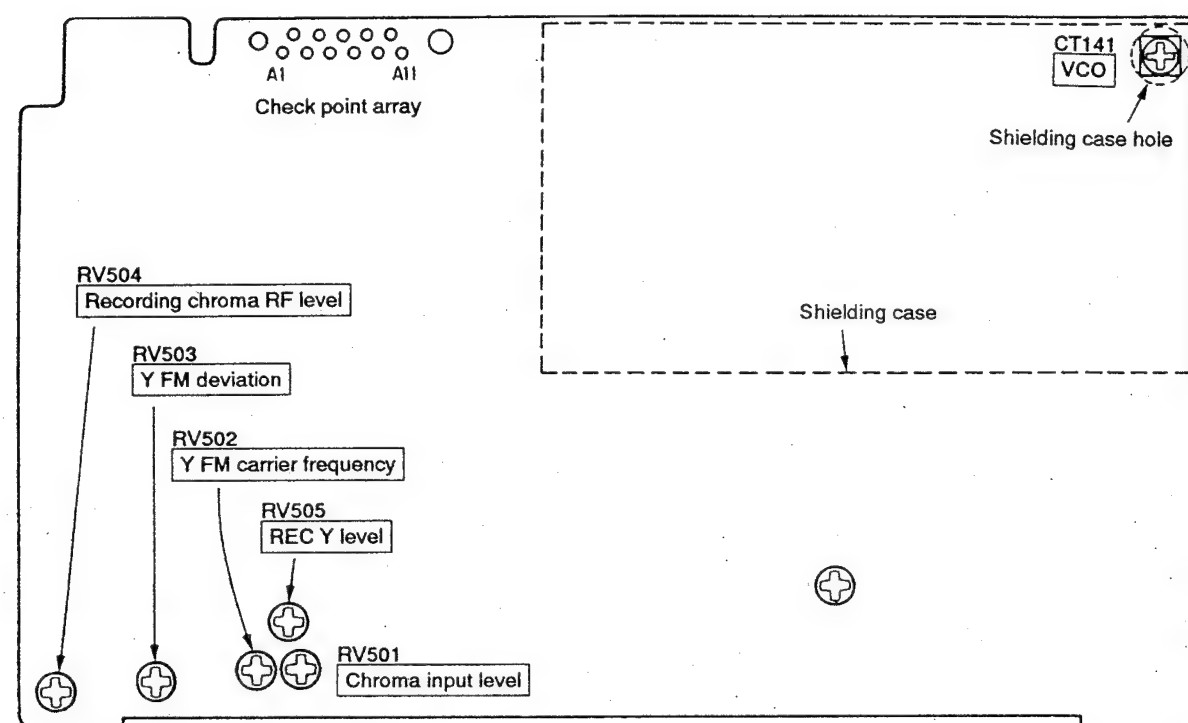
- 1) Turn RV954 and RV953 alternately until the bright and dark areas of a gray scale are displayed correctly. (The bright areas should not be made too bright to avoid a fuzzy display of the cross-hatches in the monoscope circle, and the brightness of the dark areas should be such that discrimination between the darkness and second darkest area is possible.)

4-5-9. Horizontal Amplitude, Vertical Amplitude and Focus Checks

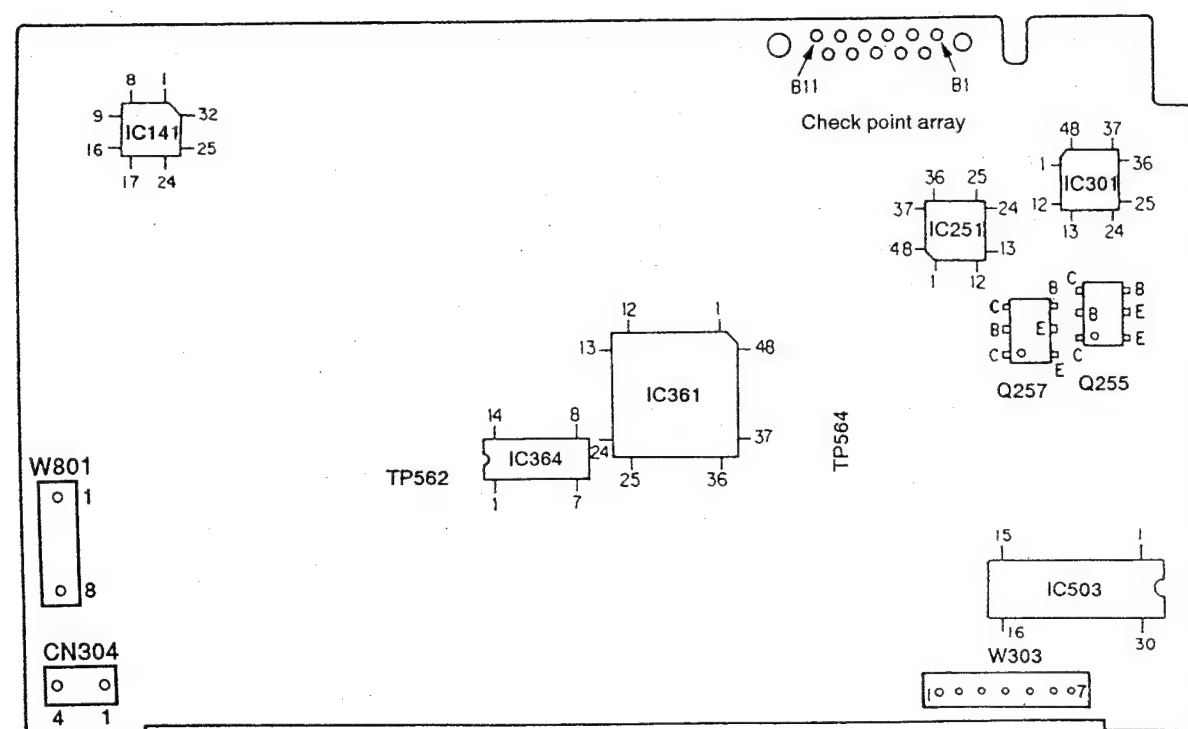
Values should conform to specifications given in "4-5-6. Horizontal Amplitude Adjustment" and "4-5-7. Vertical Amplitude Adjustment". If not, readjust accordingly, and repeat "4-5-8. Brightness, Contrast Adjustments". In this case, focus needs to be checked. If the image is not clear, perform "4-5-3. Focus Adjustment" and "4-5-4. Aberration Adjustment".

4-6. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

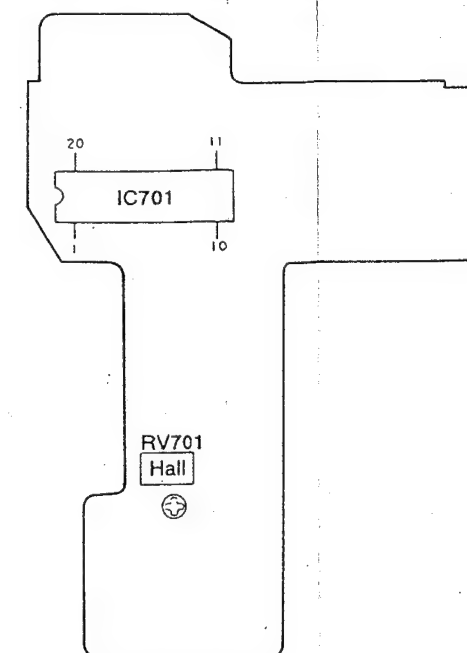
VC-98P BOARD (COMPONENT SIDE)



VC-98P BOARD (CONDUCTOR SIDE)



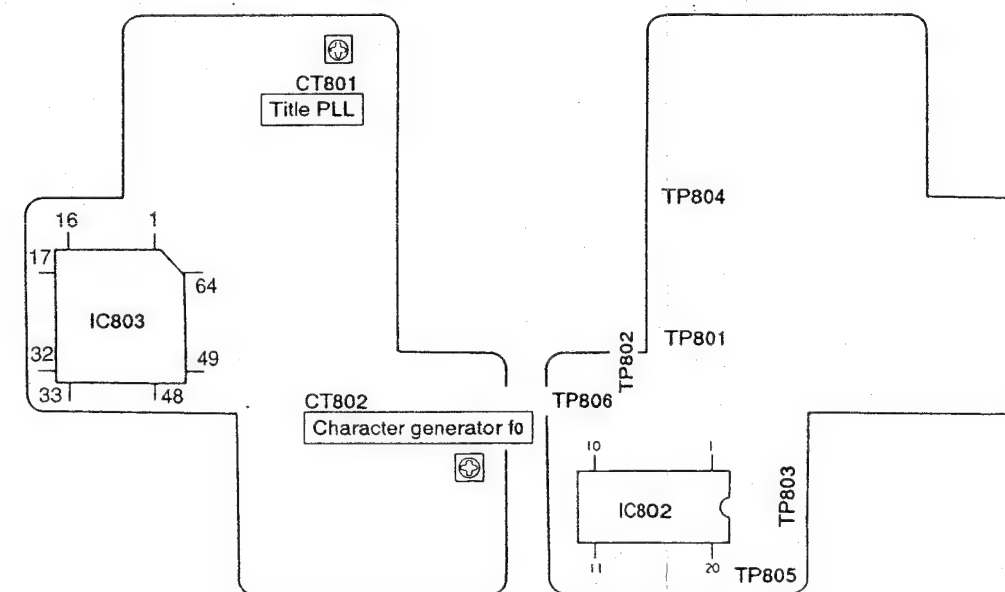
LD-43 BOARD (CONDUCTOR SIDE)



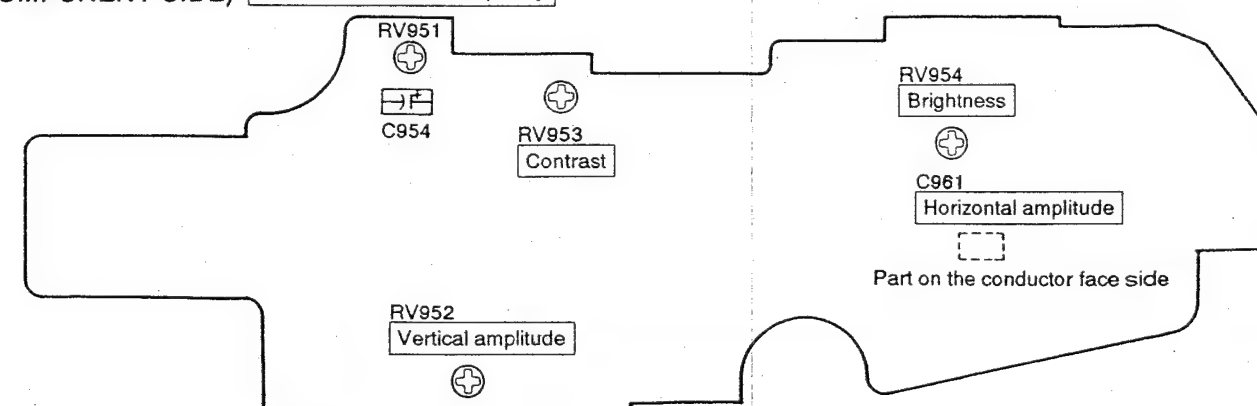
TI-37P BOARD

(COMPONENT SIDE)

(CONDUCTOR SIDE)

VF-40P BOARD
(COMPONENT SIDE)

Horizontal oscillation frequency



5. MECHANICAL ADJUSTMENT

ABOUT MECHANICAL ADJUSTMENT

As to the mechanical adjustment and check and parts replacement, refer to the separate "8 mm Video Mechanical Adjustment Manual II" [FL mechanism (Q mechanism)].

However, follow these items shown below.

The adjustment and the marks remain the same except this model has the different drum installed.

A-7049-197-A	Rotary upper drum assembly DGR-37-R-(1)
A-7049-198-A	Rotary upper drum assembly DGR-37-R-(2)

5-1. OPERATING WITH THE CASSETTE COMPARTMENT ASSEMBLY REMOVED (See Fig. 5-1.)

A. Loading

- 1) Remove the cabinets and camera block according to the "section 3.DISASSEMBLY", and supply the power to the unit. (Set up the mechanism deck so as to operate.)
- 2) Push into the lock plate release arm (A) in the direction of arrow, causing the unit to be the loading state.

B. Putting into the playback state

- 1) Short circuit Pins (3) and (8) of CN204 on the VS-72 board to set to the TEST mode.
(In the TEST mode, the rotation detecting, etc. of the S and T reel tables is ceased. This enables the tape traveling.)
- 2) After completing the step 1), set the power switch to VTR.
- 3) Put the cap (C) on the LED assembly (B).
- 4) Push into the lock plate release arm (A) to load.
- 5) Press the playback button.

C. Putting into the recording state

- 1) Perform the step 1) through 4) of "B. Putting into the playback state".
- 2) Secure the push switch (D) with an adhesive tape (E).
- 3) Turn on the REC switch.

D. Ejecting

- 1) Push the EJECT button.

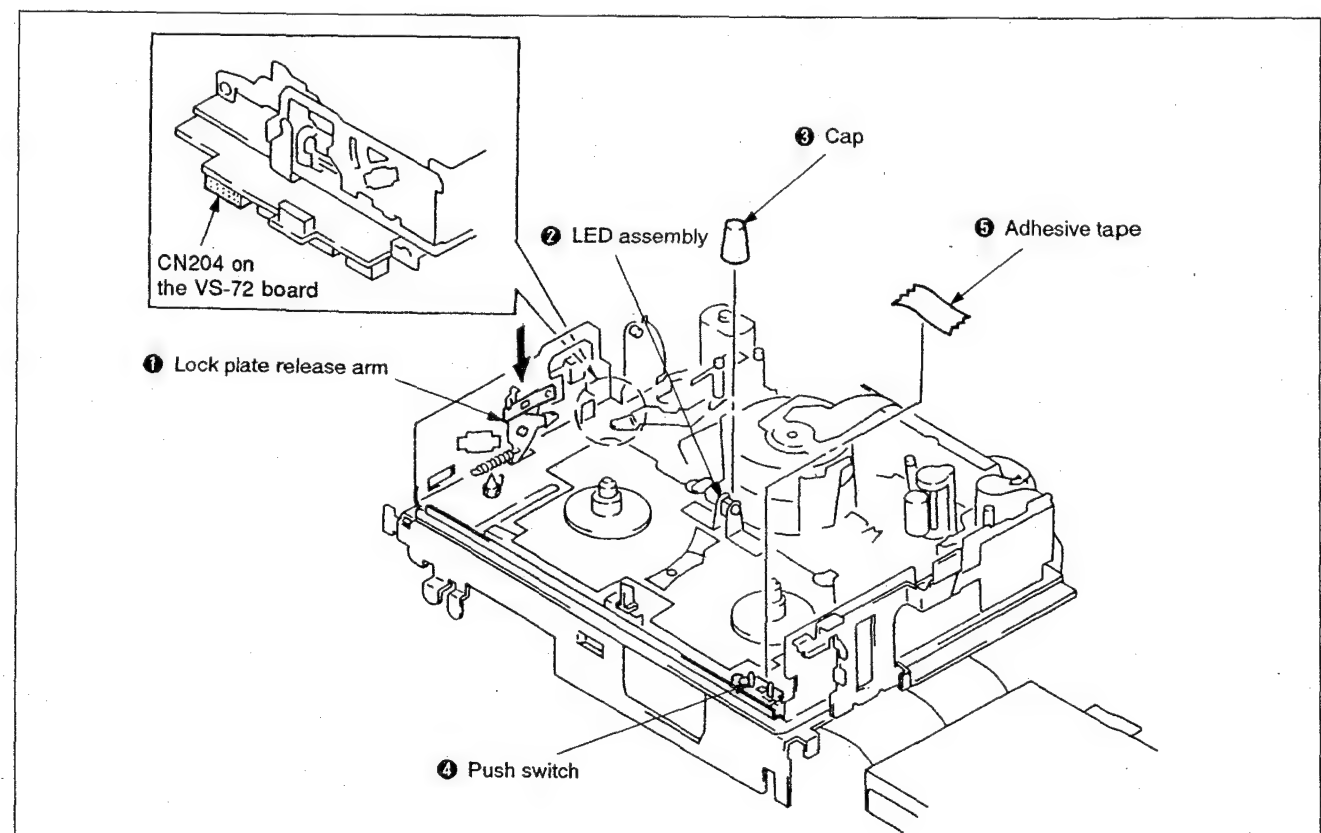


Fig. 5-1.

5-2. TAPE PATH ADJUSTMENT**A. Preparations**

- 1) Clean the tape pass surface (tape guide, drum, capstan shaft and pinch roller).
- 2) Short circuit Pins ③ and ⑦ of CN204 on the VS-72 board to set to the PATH mode.
- 3) Connect to an oscilloscope.
Channel 1 — Pin ① of CN204 on the VS-72 board
External trigger — Pin ④ of CN204 on the VS-72 board
- 4) Play back the tracking alignment tape (WR5-1CP).
- 5) Confirm that the RF waveforms at both sides of the entrance and exit on the oscilloscope are flat.
If not, perform adjustment according to the following.

CN204 on the VS-72 board

1	PB RF CH1
2	PB RF CH2
3	PB RF GND
4	RF SWP
5	UN (1/2 RF SWP)
6	UN (REC C CHECK)
7	UN (PATH)
8	UN (TEST)
9	UN (CAM ADJ)
10	UN (SP)/LP
11	DRUM I COM
12	CAP FG

6 Video Block Adjustments

FF60WIDE REPAIR MANUAL

6. VIDEO BLOCK ADJUSTMENTS

During the adjustments, see the arrangement diagram for adjustment parts from page 77, 78.

6-1. PRE-ADJUSTMENT PREPARATIONS (VIDEO BLOCK)

Use the following measuring instruments for adjustment of the Video block.

6-1-1. Equipment to be Used

- 1) Monitor TV
- 2) Dual trace oscilloscope of over 10 MHz band, incorporates delay mode. (Use 10:1 probe unless otherwise specifies.)
- 3) Frequency counter
- 4) Pattern generator with video output terminal
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Regulated power supply

- 11) Alignment tapes
Tracking adjustment (WR5-1CP)*¹ Parts Code: 8-967-995-07
Video frequency characteristics adjustment (WR5-6C)*² Parts Code: 8-967-995-17
Operation check (WR5-4CL)*³ Parts Code: 8-967-995-56
(WR5-4CSP)*⁴ Parts Code: 8-967-995-47

Note: *1 WR5-1C (8-967-995-06) is also available.

*2 WR5-2C (8-967-995-16) is also available.

*3 WR5-3CL (8-967-995-36) is also available.

*4 WR5-3CSP (8-967-995-27), WR5-4CSP (8-967-995-46) are also available.

- 12) Adjustment remote controller (Modification of RM-95)

6-1-2. Connection of Equipment

Unless otherwise specified, adjustments are made with the measuring instrument connected as shown in Fig. 6-1.

- Camera/video power switch VTR position
- Input/output selector switch INPUT position (REC mode) OUTPUT position (PB mode)
- Connect the adjustment remote controller to the remote terminal (J902 on the EL-13P board) when performing system control and servo system adjustments.

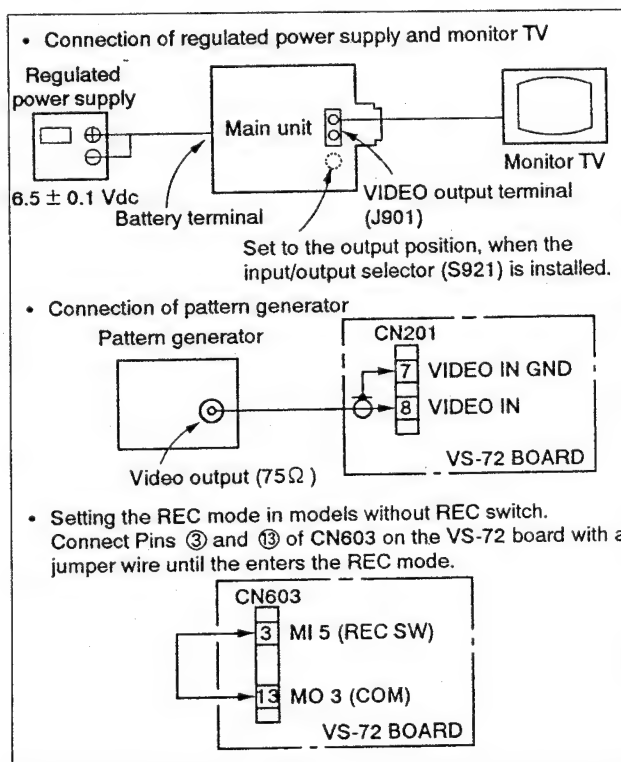


Fig. 6-1.

6 Video Block Adjustments

6-1-3. Note on Adjustments

- The video block adjustment can be made without the camera block except "Battery Down Adjustment" of system control adjustment. Remove the following three connectors in case of removing the camera block.
 1. CN3 (8-pin) on DD-30 board
 2. CN202 (7-pin) on VS-72 board
 3. CN802 (16-pin) on VC-98P board
- The EVF (electrical viewfinder) block is not required for the video block adjustment. When removing the EVF block, remove the following connector
 1. CN205 (4-pin) on VS-72 board.
- The microphone board (MA-73P board) is not required for the video block adjustment. When removing the microphone board, remove the following connector.
 1. CN402 (3-pin) on AU-95P board.

6-1-4. Set-up for Adjustment

Since the video signal obtained from the pattern generator is used as the adjusting signal for the electrical adjustment, this video output signal should meet the required specifications. Connect an oscilloscope to Pin ⑧ (VIDEO IN) of CN201 on the VS-72 board and make sure that the amplitude of the video SYNC signal is approximately 0.3V, that the amplitude of the video image is approximately 0.7V, that the burst signal amplitude is approximately 0.3V with flat characteristics, and that the signal level ratio between the burst signal and "Red" signal is 0.30:0.66. The video signal (color bars) used for electrical adjustment are shown in Fig. 6-2.

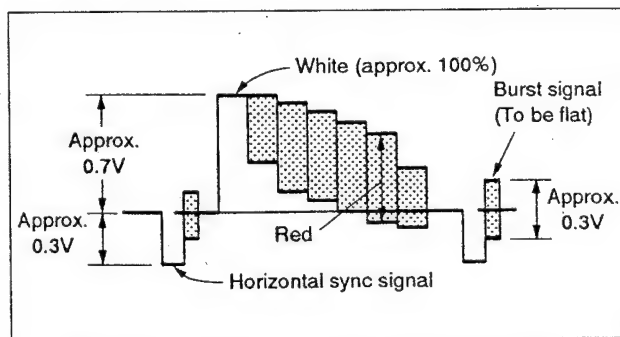


Fig. 6-2. Color bar signal of pattern generator

6 Video Block Adjustments

FF60WIDE REPAIR MANUAL

6-1-5. Alignment Tapes

The following alignment tapes are available.

Use the tape indicated in the signal column; however, in case there is no type indication in the signal column, use any tape for operation check.

Tape	REC mode	type	Tape speed	Contents		Use
				Video area	PCM area	
Tracking WR5-1CP or WR5-1C	L	MP	SP	CH2: 1 MHz tape path adjustment signal		Tape path adjustment
Video frequency characteristics WR5-6C	L	MP	SP	RF sweep: 0 to 10 MHz Marker: 1, 3.58, 5.5, 7MHz		Frequency characteristics adjustment
Operation check (SP mode) WR5-5CSP or WR5-4CSP	L	MP	SP	<ul style="list-style-type: none"> Video signal Color bar: 4 min. Monoscope: 4 min. Audio signal (AFM) 400 Hz, 60% modulation 	<ul style="list-style-type: none"> Audio signal (PCM) Monoscope: 20 Hz 20sec 400 Hz 20sec 14 kHz 20sec Color bar: 1 kHz 4 min. 	Operation check
Operation check (LP mode) WR5-4CL	L	MP	LP	<ul style="list-style-type: none"> Video signal Color bar: 4 min. Monoscope: 4 min. Audio signal (AFM) 400 Hz, 60% modulation 		

Note: Recording mode

L Conventional mode
E Hi8 (high band) mode

Tape type

MP Particle type metal tape
ME Evaporated type metal tape

Table 6-1.

75% color bar signal recorded on an alignment tape is shown in Fig. 6-3.

Note: Measured at VIDEO output terminal.
(75Ω termination)

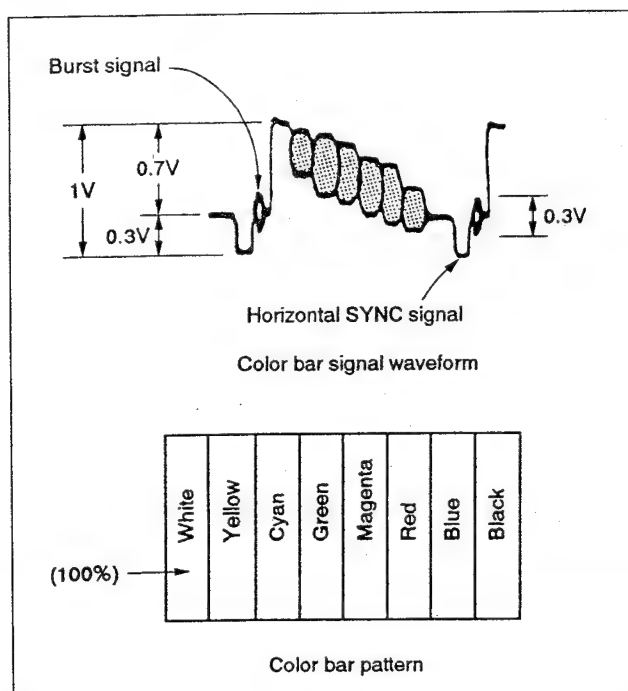


Fig. 6-3. Alignment tape color bar signal

6-1-6. I/O Level and Impedance

A. E, Australian model [I/O level and impedance]

Video input/output

Phono jack

1 Vp-p, 75Ω unbalanced, negative sync

Audio input/output

Phono jack

Input level: -7.5 dBs (0 dBs=0.775 Vrms)

Input impedance: More than 47kΩ

Output level: -7.5 dBs (at output impedance 47kΩ)

Output impedance: More than 2.2kΩ

B. AEP, UK model [Output level and impedance]

Video output

Phono jack

Output signal: 1 Vp-p 75Ω unbalanced, negative sync

Audio output

Phono jack

Specified output: -7.5 dBs

Output impedance: More than 2.2kΩ

6-1-7. Service Modes

This unit is equipped with service modes for adjustment and operation checking.

There are the following two service modes and switching between them is made by connection between GND and Pin **B6** of the check point array CPA001 on the VC-98 board.

Service Mode	Function	Connection between GND and Pin B6 of the check point array
Status indication mode	For video block adjustment, operation checking	Open (no connection)
EVR adjustment mode	For adjustment of camera block	Shorted

Refer to "4. Camera Block Adjustment" for details on the EVR adjustment mode.

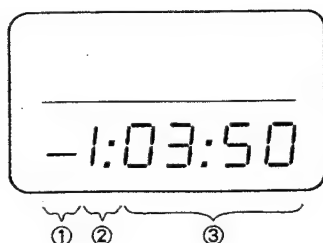
A. Invoking service mode

- 1) Connect the adjustment remote controller to the remote terminal (J902 on EL-13P board) of the main unit.
- 2) Set HOLD switch of the adjustment remote controller to the HOLD position (SERVICE position).

The status indication mode is invoked by the above operation. (To select the EVR adjustment mode, connect between Pin **B6** of the check point array CPA001 and GND with a jumper wire.

B. Indication on adjustment remote controller LCD in the status indication mode

Note: In categories 1 through 5, the same information is displayed on the EVF screen.



- ① : Minus segment flashes to indicate that the service mode has been invoked.
- ② : Indicates service mode category.
- ③ : Indicates battery voltage, LAST EMG, PRESENT EMG, MODE SW CODE, or DEW MODE according to current category.

C. Category selection and indication in each category

Select the desired category with **FF** button of the adjustment remote controller. There are five categories (1 through 5) and the indications are different for each. (Note that the category 0 is the EVR adjustment mode.)

Category	Indication on LCD														
1	A/D conversion value for battery voltage (decimal indication) ^{Note 1)} 00 : 00 — 02 : 55														
2	LAST EMG (last emergency) ^{Note 2)} Refer to Service Mode Error Indications.														
3	PRESENT EMG (current emergency) ^{Note 3)} Refer to Service Mode Error Indications.														
4	MODE SW CODE (mechanism status) <table border="1"> <tr><td>00 : 01</td><td>READY</td></tr> <tr><td>00 : 02</td><td>GL</td></tr> <tr><td>00 : 03</td><td>USE</td></tr> <tr><td>00 : 04</td><td>EJECT</td></tr> <tr><td>00 : 05</td><td>RP (REC, PB, FF, REW, CUE, REVIEW, PAUSE)</td></tr> <tr><td>00 : 06</td><td>LS</td></tr> <tr><td>00 : 07</td><td>BL</td></tr> </table>	00 : 01	READY	00 : 02	GL	00 : 03	USE	00 : 04	EJECT	00 : 05	RP (REC, PB, FF, REW, CUE, REVIEW, PAUSE)	00 : 06	LS	00 : 07	BL
00 : 01	READY														
00 : 02	GL														
00 : 03	USE														
00 : 04	EJECT														
00 : 05	RP (REC, PB, FF, REW, CUE, REVIEW, PAUSE)														
00 : 06	LS														
00 : 07	BL														
5	DEW MODE <table border="1"> <tr><td>00 : 00</td><td>NORMAL</td></tr> <tr><td>00 : 01</td><td>SENSOR ON DEW MODE (sensor in DEW mode)</td></tr> <tr><td>00 : 02</td><td>SENSOR OFF DEW MODE Restart of operation is possible after the following conditions have been satisfied: 1. EJECT 2. More than 1H has elapsed.</td></tr> </table>	00 : 00	NORMAL	00 : 01	SENSOR ON DEW MODE (sensor in DEW mode)	00 : 02	SENSOR OFF DEW MODE Restart of operation is possible after the following conditions have been satisfied: 1. EJECT 2. More than 1H has elapsed.								
00 : 00	NORMAL														
00 : 01	SENSOR ON DEW MODE (sensor in DEW mode)														
00 : 02	SENSOR OFF DEW MODE Restart of operation is possible after the following conditions have been satisfied: 1. EJECT 2. More than 1H has elapsed.														

- Note:**
- 1) Indicates a value proportional to the battery voltage.
 - 2) LAST EMG indicates the error occurred just before entering the service mode. Even if an error occurs in the service mode, it is not indicated.
 - 3) PRESENT EMG indicates the status when **FF** button of the adjustment remote controller was pressed. So, the indication does not change even if the error is eliminated.

6 Video Block Adjustments

FF60WIDE REPAIR MANUAL

• Service mode error indication

Error Status	PRESENT EMG Indication	LAST EMG Indication
No error	00 : 00	00 : 00
Loading motor	00 : 01	00 : 01
REEL FG error during unthreading	00 : 02	00 : 02
REEL FG error not during unthreading	00 : 03	00 : 03
Capstan error	00 : 04	00 : 04
DRUM FG error (0) when starting drum	00 : 05	00 : 05
DRUM FG error (1) when starting drum	01 : 05	00 : 14
DRUM FG error (2) when starting drum	02 : 05	00 : 15
No DRUM PG (0) when starting drum	00 : 06	00 : 06
No DRUM PG (1) when starting drum	01 : 06	00 : 14
No DRUM PG (2) when starting drum	02 : 06	00 : 15
DRUM FG error(0) when drum stationary	00 : 07	00 : 07
DRUM FG error(1) when drum stationary	01 : 07	00 : 14
DRUM FG error(2) when drum stationary		00 : 15
No DRUM PG (0) when drum stationary	00 : 08	00 : 08
No DRUM PG (1) when drum stationary	01 : 08	00 : 14
No DRUM PG (2) when drum stationary		00 : 15
Phase error (0) when drum stationary	00 : 09	00 : 09

- (1) During tape threading
- (2) During tape unthreading
- (0) Others

D. Releasing the service mode

The service mode can be released by returning HOLD switch of the adjustment remote controller to the NORMAL position or by disconnecting the adjustment remote controller from the remote terminal.

6-2. POWER SUPPLY BLOCK CHECKS

6-2-1. Power Supply Check (VS-72 Board)

Mode	Power ON
Measuring Instrument	Digital voltmeter
VIDEO 5V	
Measurement Point	Pin ② of W605
Specified Value	4.92 ± 0.04V
REG 5V	
Measurement Point	Pin ③ of W605
Specified Value	4.91 ± 0.04V
EVF 5V	
Measurement Point	Pin ① of W605
Specified Value	4.91 ± 0.03V
MOTOR 5.1V	
Measurement Point	Pin ⑩ of CN602
Specified Value	5.1 ± 0.3V

Checking method:

- 1) Each power supply voltage should meet the corresponding specified value.

6-3. SYSTEM CONTROL ADJUSTMENTS

6-3-1. Battery Down Adjustment (DD-30 Board)

Mode	CAMERA recording
Signal	Arbitrary
Measurement point	Check on LCD of adjustment remote controller
Measuring Instrument	
Adjusting Element	RV101
Specified Value	Border point of "-1:01:46" and "-1:01:47"

Connections:

- 1) Connect a regulated power supply and digital voltmeter as shown in Fig. 6-4.
- 2) Connect Pins ⑧ (UN (TEST)) and ③ (PB RF GND) of CN204 on the VS-72 board with a jumper wire. (TEST mode)

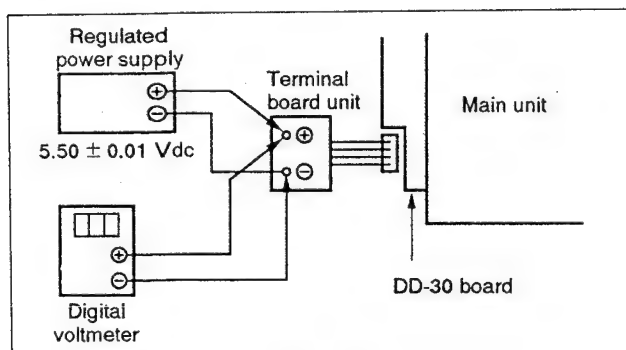


Fig. 6-4.

Adjusting method:

- 1) Connect the adjustment remote controller to the remote terminal (J902 on EL-13P board).
- 2) Set the power supply switch (S901) on the FK-0 board to CAMERA position to select the camera recording mode.
- 3) Set HOLD switch of the adjustment remote controller to the HOLD position (service position).
- 4) Confirm that the indication of the digital voltmeter is 5.50 ± 0.01 Vdc.
- 5) Set the LCD counter indication on the adjustment remote controller to the switching position between "-1:01:46" and "-1:01:47" using RV101 on the DD-30 board. (Refer to Fig. 6-6.)

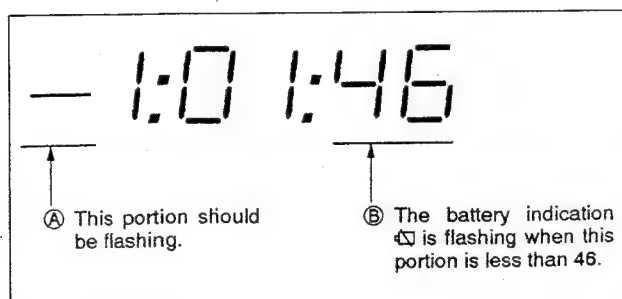


Fig. 6-5.

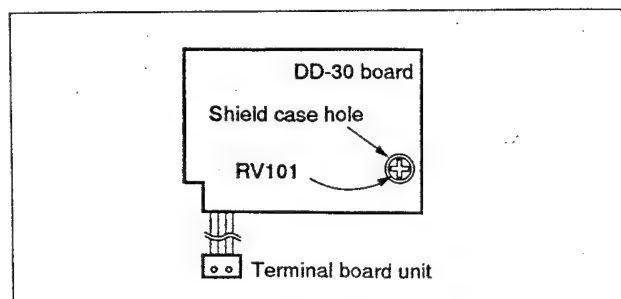


Fig. 6-6.

Checking method:

Remove connections 2) and 3) and check the following points. If the required conditions are not obtained, repeat the adjustments again.

- 1) Adjust the output voltage of the regulated power supply so that the digital voltmeter reading becomes 6.00 ± 0.01 Vdc. (VTR in camera recording mode)
- 2) Confirm that the \oplus mark is not lit on the EVF (viewfinder) screen (TALLY lamp is lit).
- 3) Lower the output voltage of the regulated power supply so that the digital voltmeter reading becomes 5.41 ± 0.01 Vdc.
- 4) Confirm that the LCD counter indication on the adjustment remote controller is "-1:01:43" to "-1:01:46".

6-3-2. System Clock Adjustment (VC-98P Board)

Note: Perform the adjustment without the lens.

Mode	Power ON
Measurement Point	Pin ⑤ of IC561 or TP562 of check land
Measuring Instrument	Frequency counter
Adjusting Element	RV561
Specified Value	330 ± 5 kHz

Adjusting method:

- 1) Adjust RV561 for 330 ± 5 kHz.

6 Video Block Adjustments

FF60WIDE REPAIR MANUAL

6-4. SERVO SYSTEM ADJUSTMENTS

6-4-1. Capstan FG Frequency Check (VS-72 Board)

Mode	Recording (SP/LP)
Signal	Arbitrary
Measurement Point	Pin ⑫ (CAP FG) of CN204
Measuring Instrument	Frequency counter
Specified Value	SP mode: 1145.5 ± 1.0 Hz LP mode: 574.7 ± 1.0 Hz

Checking method:

- 1) Connect Pin ⑧ (UN (TEST)) and Pin ③ (PB RF GND) of CN204 with a jumper wire. (TEST mode)
- 2) Connect Pin ⑩ of CN204 to ground with a jumper wire or set the EDIT switch to ON position. (Setting of LP mode)
- 3) Set to the recording mode and confirm that the capstan FG frequency is 574.7 ± 1.0 Hz.
- 4) Set to the stop mode and remove the jumper wire between Pin ⑩ of CN204 and GND or set the EDIT switch to OFF position. (Setting of SP mode)
- 5) Set to the recording mode and confirm that the capstan FG frequency is 1145.5 ± 1.0 Hz.
- 6) Remove the jumper wire connected in step 1).

6-4-2. Capstan FG Offset Adjustment (VS-72 Board)

Mode	Recording
Signal	Arbitrary
Measurement Point	Pin ⑫ (CAP FG) of CN204
Measuring Instrument	Oscilloscope
Adjusting Element	RV502
Specified Value	$50 \pm 1\%$ duty cycle

Adjusting method:

- 1) Adjust RV502 so that the CAP FG output waveform duty cycle becomes $50 \pm 1\%$

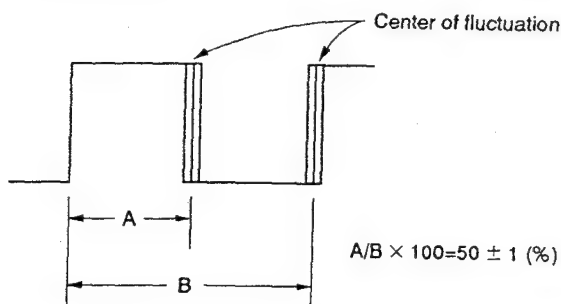


Fig. 6-7. Capstan FG offset adjustment

6-4-3. Drum Phase Lock Check (VS-72 Board)

Mode	Recording (SP)
Signal	Arbitrary
Measurement Point	CH1: Pin ⑪ (SYSTEM SYNC) of IC601 CH2: Pin ④ (RF SWP) of CN204
Measuring Instrument	Oscilloscope
Specified Value	224 ± 50 μ sec

Checking method:

- 1) Confirm that duration between the switching point of CH2 (RF SWP) and the rising edge of CH1 (SYSTEM SYNC) is 224 ± 50 μ sec.

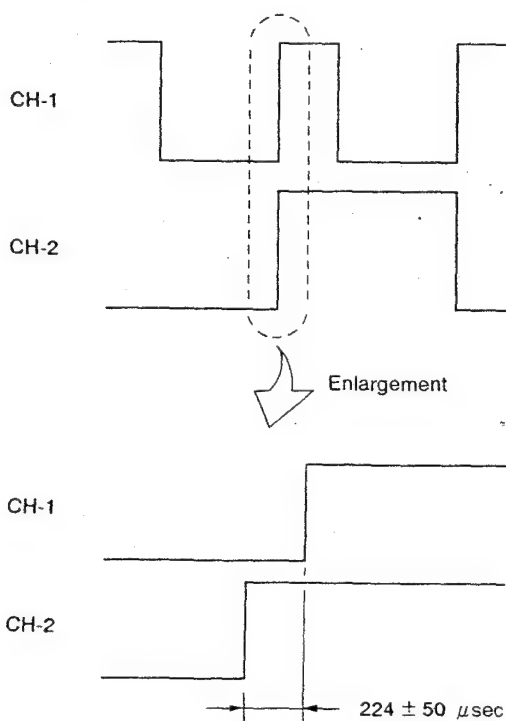


Fig. 6-8. Drum phase lock check

6-4-4. Switching Position Adjustment (VS-72 Board)

Mode	Playback
Signal	Alignment tape for operation check (WR5-5CSP)
Measurement Point	CH1: VIDEO output terminal CH2: Pin ④ (RF SWP) of CN204
Measuring Instrument	Oscilloscope
Adjusting Element	RV602
Specified Value	$6.5 \pm 0.3H$ ($410 \pm 20 \mu\text{sec}$)

Connection:

- 1) Connect Pin ③ (UN (TEST)) and Pin ③ (PB RF GND) of CN204 with a jumper wire. (TEST mode)
- 2) In case the cabinet (R) is connected, set EDIT switch in OFF position. (Setting of SP mode)

Adjusting method:

- 1) Adjust RV602 for $6.5 \pm 0.3H$ ($410 \pm 20 \mu\text{sec}$).

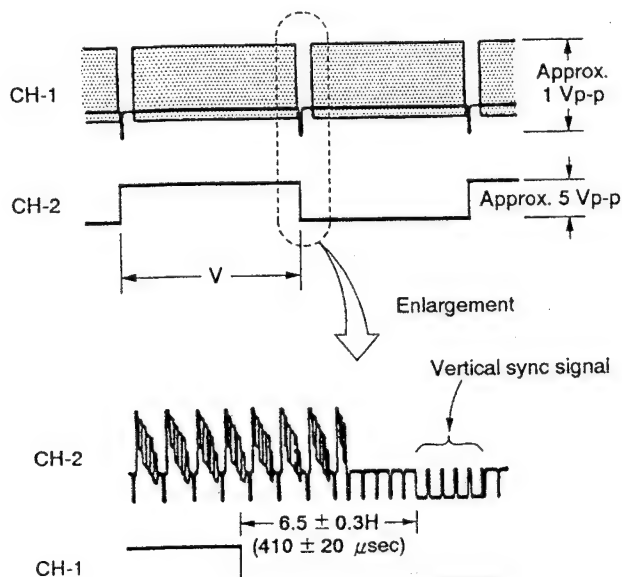


Fig. 6-9. Switching position adjustment

6-5. VIDEO BLOCK ADJUSTMENTS

The adjustment of the video system should in principle follow the adjustment procedure outlined below.

The color video signal supplied from the pattern generator is utilized as the video input signal for the video system adjustment in the recording mode. Make sure that the sync signal and the color burst signal match the specifications given in Set-up for adjustment, as shown in Fig. 6-2.

[Adjustment procedure]

- 1) Playback frequency characteristics adjustment
- 2) Flying erase check
- 3) Crystal oscillator fo adjustment
- 4) Y/C separation adjustment
- 5) IR2 adjustment
- 6) SYNC AGC adjustment
- 7) Emphasis input level adjustment
- 8) PB Y level 1 adjustment
- 9) PB Y level 2 adjustment
- 10) Y FM carrier frequency adjustment
- 11) Y FM deviation adjustment
- 12) Chroma emphasis fo adjustment
- 13) REC C RF level adjustment
- 14) REC Y level adjustment
- 15) REC C current adjustment
- 16) REC ATF current adjustment
- 17) Feedback chroma adjustment
- 18) Quasi burst phase adjustment
- 19) Delay burst phase adjustment

6 Video Block Adjustments

FF60WIDE REPAIR MANUAL

6-5-1. Playback Frequency Characteristics Adjustment (VS-72 Board)

Mode	Playback
Signal	Alignment tape: for frequency characteristics adjustment (WR5-6C)
Measurement Point	See Fig. 6-10.
Measuring Instrument	Oscilloscope
Adjusting Element	RV111 (1a) RV113 (1b) RV112 (2a) RV114 (2b)
Specified Value	3.58 MHz level : 5.5 MHz level = 4 : (3 ± 0.3)

Adjusting method:

- 1) Adjust each RV so that the ratio of the 3.58 MHz level to the 5.5 MHz level of the PB RF output waveform becomes 4:(3 ± 0.3) for 1a, 1b, 2a and 2b respectively.

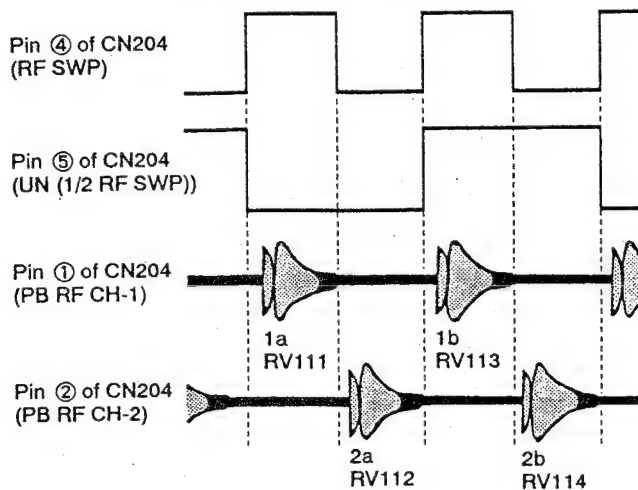


Fig. 6-10. Playback frequency characteristics adjustment

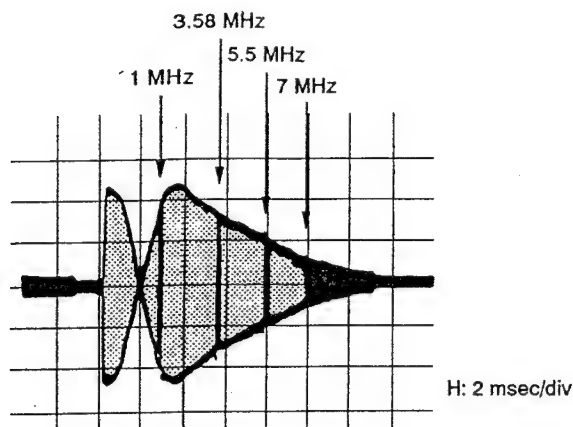


Fig. 6-11. Playback frequency characteristics adjustment

6-5-2. Flying Erase Check (VS-72 Board)

Mode	Recording
Signal	Arbitrary
Measurement Point	Pin 15 of CN101 (FE (X))
Measuring Instrument	Oscilloscope and frequency counter
Specified Value	Frequency: Over 7.0 MHz Voltage: Over 7.0 Vp-p

Note: Be sure to use MP type tape.
(Pin 12 of CN602 should be "L".)

Checking method:

- 1) Confirm that the oscillation frequency is over 7.0 MHz and that the oscillation voltage is over 7.0 Vp-p.

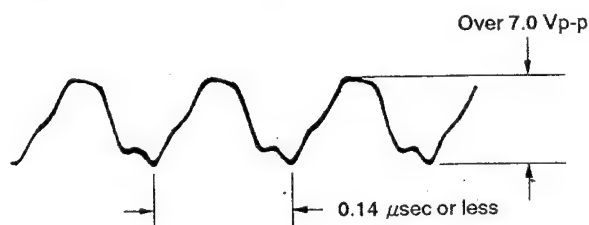


Fig. 6-12. Flying erase check

6-5-3. Crystal Oscillator fo Checking (VS-72 Board)

Mode	Playback
Signal	Alignment tape for operation checking (WR5-5CSP)
Measurement Point	Pin 16 of IC203
Measuring Instrument	Frequency counter
Specified Value	4433618 ± 100Hz

Note: Connect the frequency counter through a buffer of high impedance (approx. 10MΩ) and low capacitance (10pF or less).

Checking method:

- 1) Confirm that the oscillation frequency at Pin 16 of IC203 is 4433618 ± 100Hz.

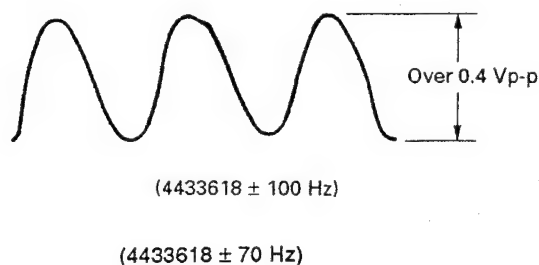


Fig. 6-13. Crystal oscillator fo adjustment

6 Video Block Adjustments

6-5-4. Y/C Separation Adjustment (VS-72 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Any terminal of RV203 (DEV) (Pin ②⑤ of IC203)
Measuring Instrument	Oscilloscope
Adjusting Element	RV207
Specified Value	Minimum residual chroma component

Connections:

- 1) Connect Pin ②⑤ of IC203 (Pin ①④ of IC202) to GND with a 10 μ F/16V electrolytic capacitor.
(Capacitor negative side to ground)

Adjusting method:

- 1) Adjust RV207 so that the residual chroma component becomes minimum.

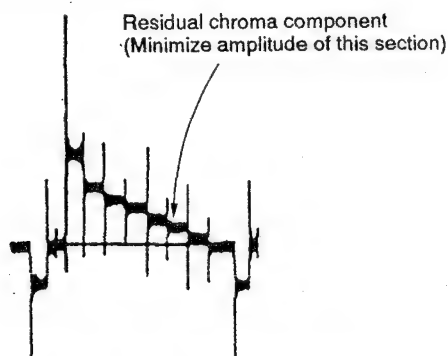


Fig. 6-14. Y/C separation adjustment

6-5-5. IR2 Adjustment (VS-72 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Pin ⑧ of IC203 or base of Q229 (BF OUT)
Measuring Instrument	Oscilloscope
Adjusting Element	RV206
Specified Value	$7.0 \pm 0.2 \mu\text{sec}$

Adjusting method:

- 1) Adjust RV206 so that the pulse width becomes $7.0 \pm 0.2 \mu\text{sec}$.

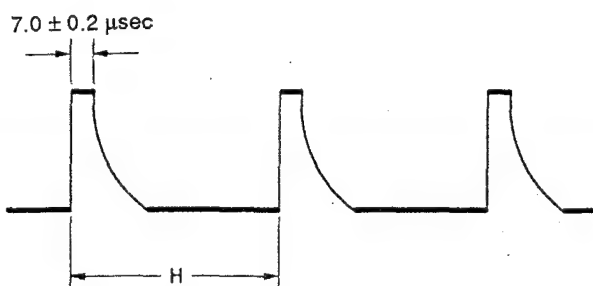


Fig. 6-15. IR2 adjustment

6-5-6. SYNC AGC Adjustment (VS-72 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Pin ④⑨ of IC203
Measuring Instrument	Oscilloscope
Adjusting Element	RV201
Specified Value	$0.49 \pm 0.025 \text{ Vp-p}$

Adjusting method:

- 1) Adjust RV201 for $0.49 \pm 0.025 \text{ Vp-p}$.

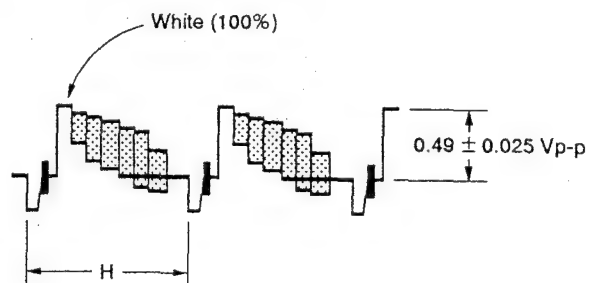


Fig. 6-16. SYNC AGC adjustment

6-5-7. Emphasis Input Level Adjustment (VS-72 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Pin ⑤④ of IC203
Measuring Instrument	Oscilloscope
Adjusting Element	RV205
Specified Value	$0.50 \pm 0.025 \text{ Vp-p}$

Adjusting method:

- 1) Adjust RV205 for $0.50 \pm 0.025 \text{ Vp-p}$.
- 2) Be sure to perform "PB Y Level 2 Adjustment" after this adjustment.

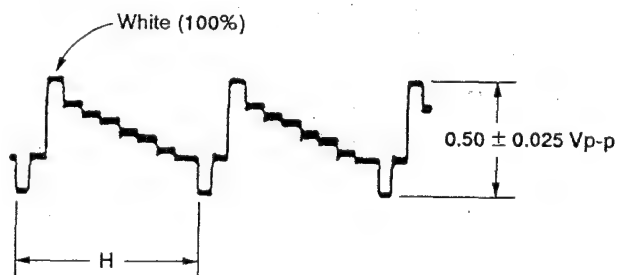


Fig. 6-17. Emphasis input level adjustment

6 Video Block Adjustment

FF60WIDE REPAIR MANUAL

6-5-8. PB Y Level 1 Adjustment (VS-72 Board)

Mode	Playback
Signal	Alignment tape: For operation check (WR5-5CSP) Color bar section
Measurement Point	Pin ④ of IC203 (Pin ⑤ of IC202)
Measuring Instrument	Oscilloscope
Adjusting Element	RV202
Specified Value	0.50 ± 0.025 Vp-p

Adjusting method:

- 1) Adjust RV202 for 0.50 ± 0.025 Vp-p.
- 2) Be sure to perform "PB Y Level 2 Adjustment" after "PB Y Level 1 Adjustment".

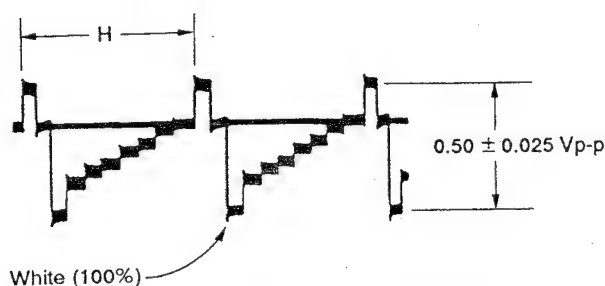


Fig. 6-18. PB Y level 1 adjustment

6-5-10. Y FM Carrier Frequency Adjustment (VS-72 Board)

Mode	Recording
Signal	No signal
Measurement Point	TP161 ^{Note}
Measuring Instrument	Frequency counter
Adjusting Element	RV204
Specified Value	4.39 ± 0.02 MHz

Note: TP161 is the check land. (See Fig. 6-23.)

Adjusting method:

- 1) Adjust RV204 for 4.39 ± 0.02 MHz.
- 2) Perform "Deviation Adjustment"

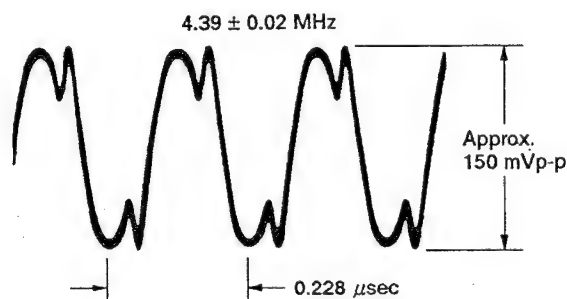


Fig. 6-20. Y FM carrier frequency adjustment

6-5-9. PB Y Level 2 Adjustment (VS-72 Board)

Mode	Playback
Signal	Alignment tape: For operation check (WR5-5CSP) Color bar section
Measurement Point	VIDEO output terminal (J901)
Measuring Instrument	Oscilloscope
Adjusting Element	RV208
Specified Value	$1.00^{+0.025}_{-0.05}$ Vp-p

Note: 1) Terminate VIDEO OUT (J901) at 75Ω.

- 2) Make sure that "PB Y Level 1 Adjustment" and "Emphasis Input Level Adjustment" have been completed.

Adjusting method:

- 1) Adjust RV208 for $1.00^{+0.025}_{-0.05}$ Vp-p.

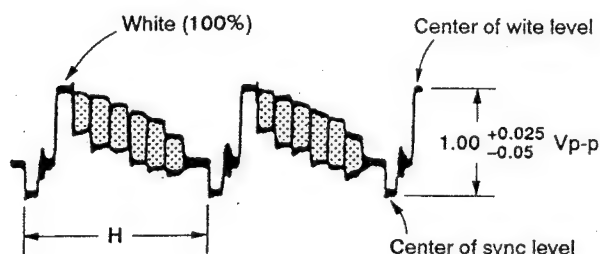


Fig. 6-19. PB Y level 2 adjustment

6 Video Block Adjustment

6-5-11. Y FM Deviation Adjustment (VS-72 Board)

Mode	Recording and playback
Signal	Color bar
Measurement Point	VIDEO output terminal (J901)
Measuring Instrument	Oscilloscope
Adjusting Element	RV203
Specified Value	Playback level is 1.00 ± 0.04 Vp-p

Note: 1) Confirm that "Emphasis Input Level Adjustment", "PB Y Level Adjustment" and "Y FM Carrier Frequency Adjustment" have been completed.

2) Terminate VIDEO OUT (J901) at 75Ω .

Adjusting method:

- 1) Record the color bar signal.
- 2) Playback the recorded signal.
- 3) Confirm the playback output.
Specified value: 1.00 ± 0.04 Vp-p
- 4) If not meet the specified value, repeat 1) through 3) after turning RV203 in the following manner.

	Rotation direction of RV203
When larger than specified value	Clockwise (↻)
When smaller than specified value	Counterclockwise (↺)

Table 6-2.

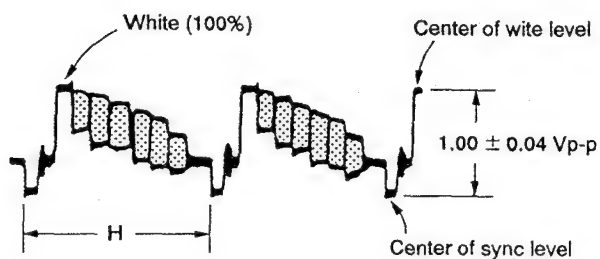


Fig. 6-21. Y FM deviation adjustment

6-5-12. Chroma Emphasis fo Adjustment (VS-72 Board)

Mode	Recording
Signal	Color bar
Measurement Point	TP212 (emitter of Q241) <i>Note</i>
Measuring Instrument	Oscilloscope
Adjusting Element	FL201
Specified Value	Minimum fo component

Note: TP212 is check land (See Fig. 6-23.)

Adjusting method:

- 1) Adjust FL201 so that the amplitude of flat section of the chroma signal REC section becomes minimum.

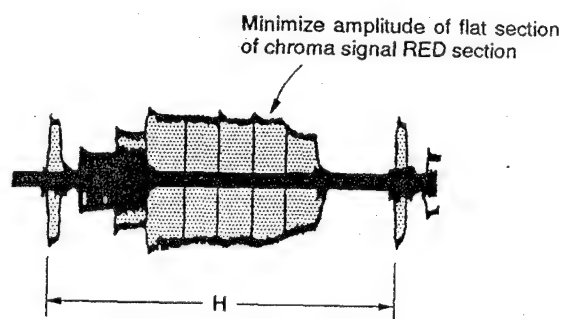


Fig. 6-22. Chroma emphasis fo adjustment

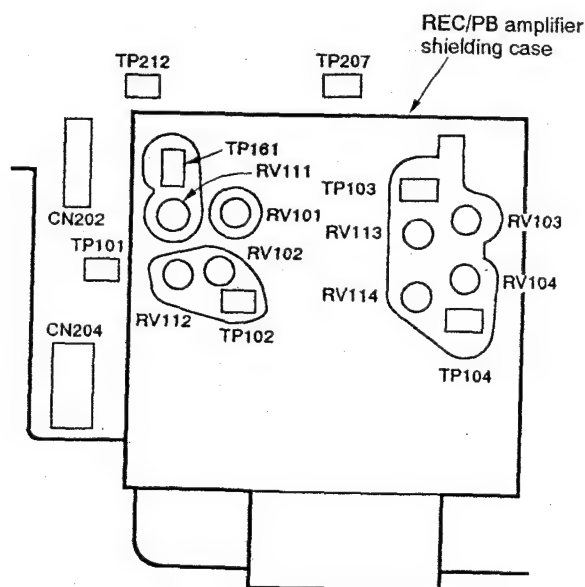


Fig. 6-23.

6 Video Block Adjustment

FF60WIDE REPAIR MANUAL

6-5-13. REC C RF Level Adjustment (VS-72 Board)

Mode	Recording
Signal	Color bar
Measurement Point	TP212 (emitter of Q241) ^{Note}
Measuring Instrument	Oscilloscope
Adjusting Element	RV210
Specified Value	250 ± 10 mVp-p

Note: TP212 is the check land. (See Fig. 6-23.)

Adjusting method:

- 1) Adjust RV210 so that the amplitude of flat red portion of the chroma signal becomes 250 ± 10 mVp-p.

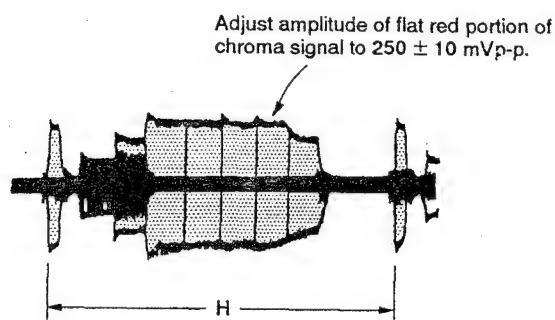


Fig. 6-24. REC C RF level adjustment

6-5-14. REC Y Level Adjustment (VS-72 Board)

Mode	Recording
Signal	No signal
Measurement Point	TP161 (emitter of Q237) ^{Note}
Measuring Instrument	Oscilloscope
Adjusting Element	RV209
Specified Value	135 ± 5 mVp-p

Note: TP161 is the check land. (See Fig. 6-23.)

Adjusting method:

- 1) Adjust RV209 135 ± 5 mVp-p.

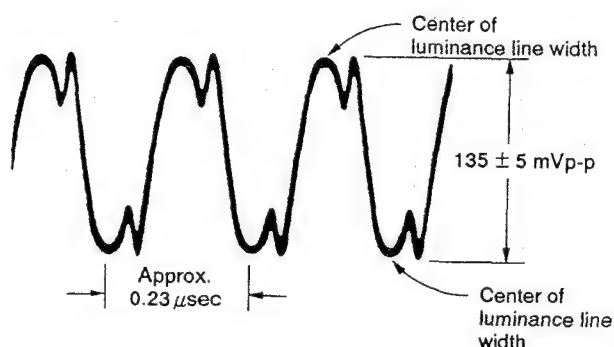


Fig. 6-25. REC Y level adjustment

6-5-15. REC C Current Adjustment (VS-72 Board)

Mode	Recording
Signal	Color bar
Measurement Point	CH1 (1:1 probe): TP101 (connecting point between RV101 and R140) ^{Note 1)} (1a) TP103 (connecting point between RV103 and R144) ^{Note 1)} (1b) TP102 (connecting point between RV102 and R129) ^{Note 1)} (2a) TP104 (connecting point between RV104 and R123) ^{Note 1)} (2b) CH2 (10:1 probe): Pin ⑤ (1/2 RF SWP) of CN204
Measuring Instrument	Oscilloscope
Adjusting Element	RV101 (1a) RV103 (1b) RV102 (2a) RV104 (2b)
Specified Value	17.0 ± 1.3 mVp-p

Note: 1) TP101 to TP104 are the check land. (See Fig. 6-23.)

2) Use the MP type tape.

Connections:

- 1) Remove CN401 on the AU-95P board.
- 2) Connect the Q543 emitter (REC ATF) and the collector on the VS-72 board with a jumper wire.

Adjusting method:

- 1) Adjust each RV so that the output waveform of 1a, 1b, 2a and 2b become 17.0 ± 1.3 mVp-p.

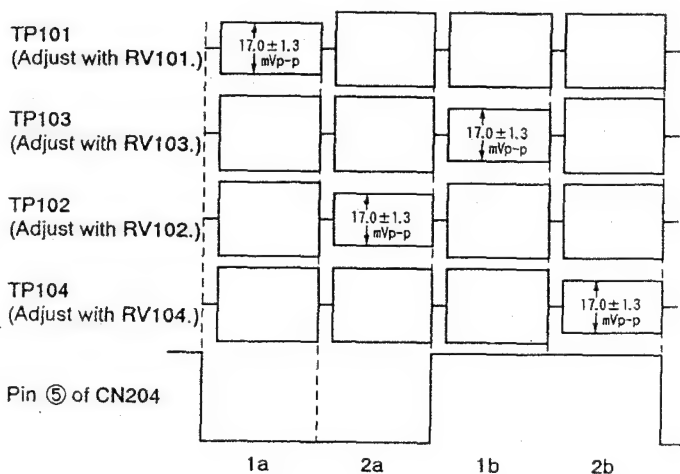


Fig. 6-26. REC C current adjustment

6-5-16. REC ATF Current Check (VS-72 Board)

Mode	Recording
Signal	No signal
Measurement Point	TP101 (connecting point between RV101 and R140) ^{Note 1)} (1a) TP103 (connecting point between RV103 and R144) ^{Note 1)} (1b) TP102 (connecting point between RV102 and R129) ^{Note 1)} (2a) TP104 (connecting point between RV104 and R123) ^{Note 1)} (2b)
Measuring Instrument	Oscilloscope (1:1 probe)
Specified Value	5.9 ± 1.5 mVp-p (1a) 5.0 ± 1.5 mVp-p (1b) 6.0 ± 1.5 mVp-p (2a) 6.0 ± 1.5 mVp-p (2b)

Note: 1) TP101 to TP104 are the check land. (See Fig. 6-23.)
2) Use the MP type tape.

Connection:

- 1) Remove CN401 on the AU-95P board.

Checking method:

- 1) Trigger a 9.9 μ sec (1 cycle) waveform superposed to the output waveform of TP101 (1a), and confirm that the waveform level is 5.5 ± 1.5 mVp-p.
- 2) Trigger a 6.1 μ sec (1 cycle) waveform superposed to the output waveform of TP103 (1b), and confirm that the waveform level is 5.0 ± 1.5 mVp-p.
- 3) Trigger a 8.5 μ sec (1 cycle) waveform superposed to the output waveform of TP102 (2a), and confirm that the waveform level is 5.5 ± 1.5 mVp-p.
- 4) Trigger a 6.8 μ sec (1 cycle) waveform superposed to the output waveform of TP104 (2b), and confirm that the waveform level is 5.5 ± 1.5 mVp-p.

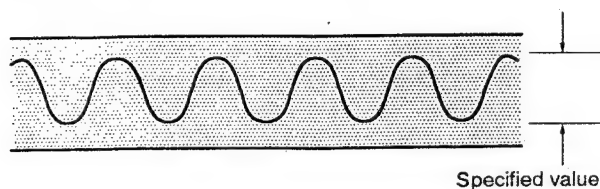


Fig. 6-27. REC ATF level adjustment

6-5-17. Feedback Chroma Adjustment (PD-18P Board)

Mode	Playback
Signal	Alignment tape for operation check (WR5-5CSP)
Measurement Point	Emitter of Q205
Measuring Instrument	Oscilloscope
Adjusting Element	RV201

Note: Remove the MD frame assembly to perform adjustments.

Adjusting method:

- 1) Set RV201 extreme counterclockwise position.
(See Fig. 6-31)
- 2) Turn RV201 slowly clockwise (\odot) and stop where the correlative chroma component is minimum.

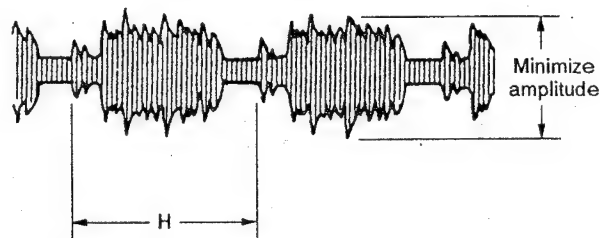


Fig. 6-28.

6 Video Block Adjustment

FF60WIDE REPAIR MANUAL

6-5-18. Quasi Burst Phase Adjustment (VS-72 Board)

A. Method using vectorscope

Mode	Playback
Signal	Alignment tape for operation check (WR5-5CSP)
Measurement Point	VIDEO output terminal (J901)
Measuring Instrument	Vectorscope
Adjusting Element	RV212
Specified Value	Phase of color luminance points in quasi burst mode is same as phase of color luminance points in through burst mode

Adjusting method:

- 1) Memorize of the phase of the color luminance points (especially yellow). (Through burst mode)
- 2) Connect cathode of D216 and Pin ② of CN201 with a diode (1SS119, etc.). (Quasi burst mode)

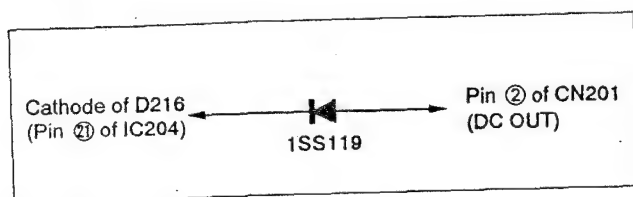


Fig. 6-29.

- 3) Confirm the color of color bars on the monitor screen. If abnormal, stop the unit and then set the playback mode again.
- 4) Adjust RV212 so that the phase of the color luminance points is the same as the phase memorized in 1).
- 5) Remove the diode.

B. Method using monitor TV

Mode	Playback
Signal	Alignment tape for operation check (WR5-5CSP)
Measurement Point	Confirmation on monitor TV screen
Measuring Instrument	
Adjusting Element	RV212
Specified Value	Minimum chroma flickering

Connection:

- 1) Connect cathode of D216 and Pin ② of CN201 using a diode (1SS119, etc.).

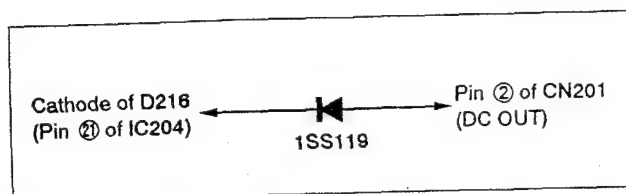


Fig. 6-30.

Adjusting method:

- 1) Observe the monitor screen. If color is abnormal, stop the unit and then set the playback mode again.
- 2) Set the monitor color level to maximum and its bright level to minimum.
- 3) Rotate RV212 fully in the counterclockwise direction (↺).
- 4) Turn RV212 slowly clockwise and stop where chroma flicker is minimum and horizontal black stripes are least visible.
- 5) Remove the diode.

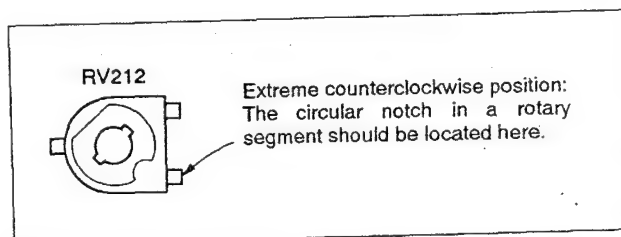


Fig. 6-31.

6-5-19. Delay Burst Phase Adjustment (VS-72 Board)

Mode	Playback pause (LP mode)
Signal	Alignment tape for operation check (WR5-4CL) Color bars
Measurement Point	Confirmation on monitor TV screen
Measuring Instrument	
Adjusting Element	RV213
Specified Value	Minimum chroma flickering

Adjusting method:

- 1) Set the monitor TV color level to maximum and its bright level to minimum.
- 2) Minimize chroma flicker with RV213 so that horizontal black stripes cannot longer be seen.

6-6. AUDIO SYSTEM ADJUSTMENT

- Perform adjustment with the color bar signal used as the video input signal.

[Connection of audio measuring instruments]

In addition to the video system measuring instruments, connect the audio system measuring instruments as shown in the figure below, and set the power switch to the video position for adjustment.

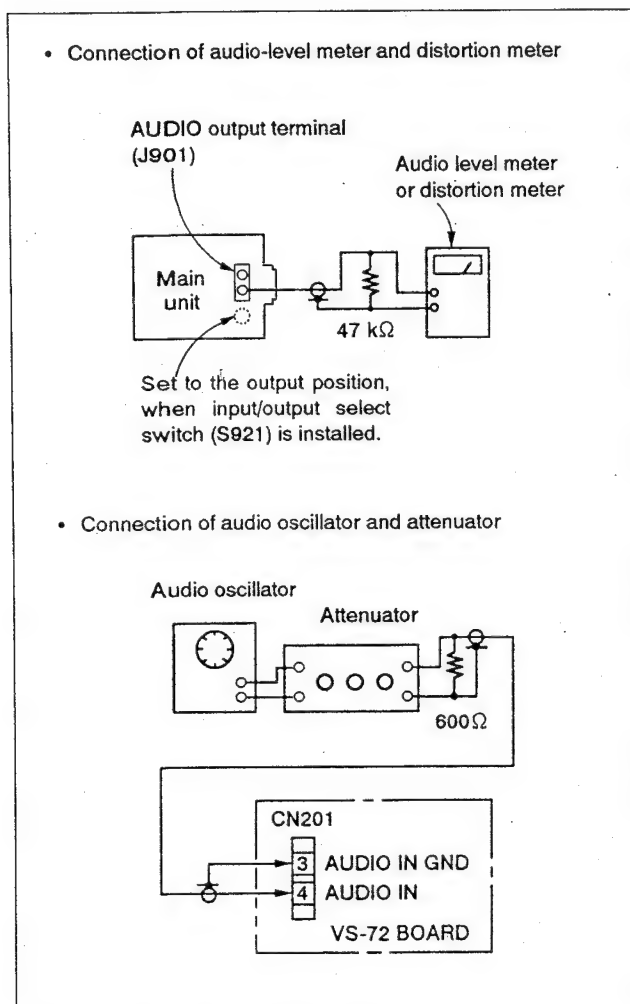


Fig. 6-32.

6-6-1. AFM Carrier Frequency Adjustment (AU-95P Board)

Mode	Recording
Signal	No signal
Measurement Point	Pin ⑬ of IC401 (REC AFM) (JL419)
Measuring Instrument	Frequency counter
Adjusting Element	RV401
Specified Value	1.505 ± 0.002 MHz

Note: Connect the frequency counter through a buffer amplifier (oscilloscope, etc.) of high impedance and low capacitance.

Adjustment method:

- 1) Turn OFF the audio oscillator output.
- 2) Adjust RV401 so that the AFM carrier frequency is 1.505 ± 0.002 MHz.

6-6-2. REC AFM Carrier Level Check (AU-95P Boards)

Mode	Recording
Signal	No signal
Measurement Point	Pin ⑧ of CN401 (REC AFM)
Measuring Instrument	Oscilloscope
Specified Value	68 ± 12 mVp-p

Checking method:

- 1) Confirm that the level is 68 ± 12 mVp-p.

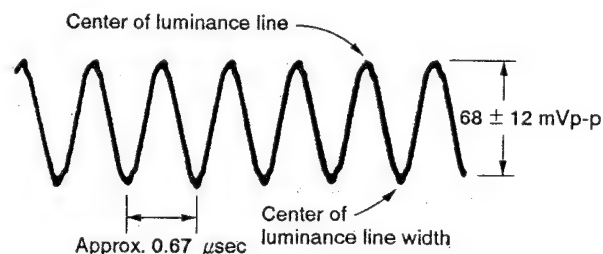


Fig. 6-33. REC AFM carrier level

6 Video Block Adjustment

FF60WIDE REPAIR MANUAL

6-6-3. AFM Deviation Adjustment (AU-95P Board)

Mode	Playback
Signal	Alignment tape: for operation check (WR5-5CSP)
Measurement Point	Audio input/output terminal (J901)
Measuring Instrument	Audio level meter
Adjusting Element	RV402
Specified Value	-7.5 ± 0.2 dBs

Checking method:

- 1) Adjust RV402 so that the audio output level is -7.5 ± 0.2 dBs.

Checking method:

- 1) Record signal ① through ③ in order.
- 2) Playback the recorded sections.
- 3) With the 400 Hz playback output level as 0 dB, confirm that the playback output level of 30 Hz and 14 kHz is 0 ± 3 dB.

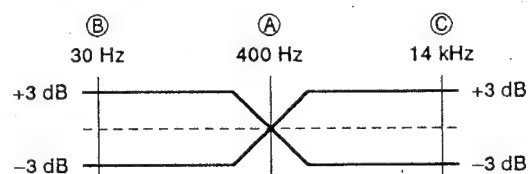


Fig. 6-34. AFM overall frequency characteristics

6-6-4. E-E Output Level Check

Mode	E-E
Signal	400 Hz, -7.5 dBs
Measurement Point	AUDIO output terminal (J901)
Measuring Instrument	Audio level meter
Specified Value	-7.5 ± 2 dBs

Checking method:

- 1) Make sure that the audio output level is -7.5 ± 2 dBs.

6-6-5. Overall Level Characteristics Check

Mode	Self-recording and playback
Signal	400 Hz, -7.5 dBs
Measurement Point	AUDIO output terminal (J901)
Measuring Instrument	Audio level meter
Specified Value	-7.5 ± 3 dBs

Checking method:

- 1) Record the signal.
- 2) Playback the recorded section.
- 3) Make sure that the audio output level is -7.5 ± 3 dBs.

6-6-6. Overall Frequency Characteristics Check

Mode	Self-recording and playback
Signal	① 400 Hz, -17.5 dBs ② 30 Hz, -17.5 dBs ③ 14 kHz, -17.5 dBs
Measurement Point	AUDIO output terminal (J901)
Measuring Instrument	Audio level meter
Specified Value	With the 400 Hz playback output level as 0 dB, the playback output level of 30 Hz and 14 kHz is 0 ± 3 dB

6-6-7. Overall Distortion Check

Mode	Self-recording and playback
Signal	400 Hz, -7.5 dBs
Measurement Point	AUDIO output terminal (J901)
Measuring Instrument	Distortion meter
Specified Value	Less than 0.5% *1

Checking method:

- 1) Record the signal.
- 2) Playback the recorded section.
- 3) Confirm that the distortion is less than 0.5%. *1

*1 Value when 200 Hz — 6 kHz 18 dB/oct BPF is used.
When the filter is not used less than 1.0%

6-6-8. Overall Noise Level Check

Mode	Self-recording and playback
Signal	No signal (shorting plug is inserted into audio input terminal)
Measurement Point	AUDIO output terminal (J901)
Measuring Instrument	Audio level meter
Specified Value	Less than -67.5 dBs *2

Checking method:

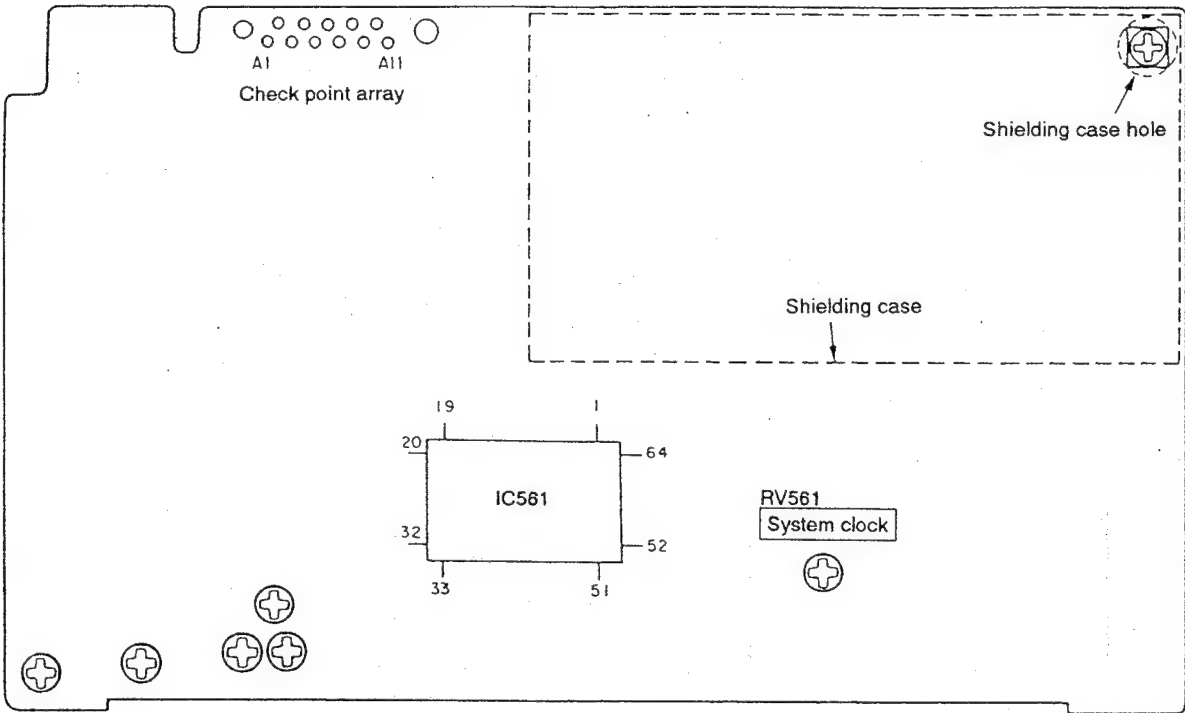
- 1) Record the signal.
- 2) Playback the recorded section.
- 3) Make sure that the noise level is less than -67.5 dBs. *2

*2 Value when IHF-A hearing correction filter is used.

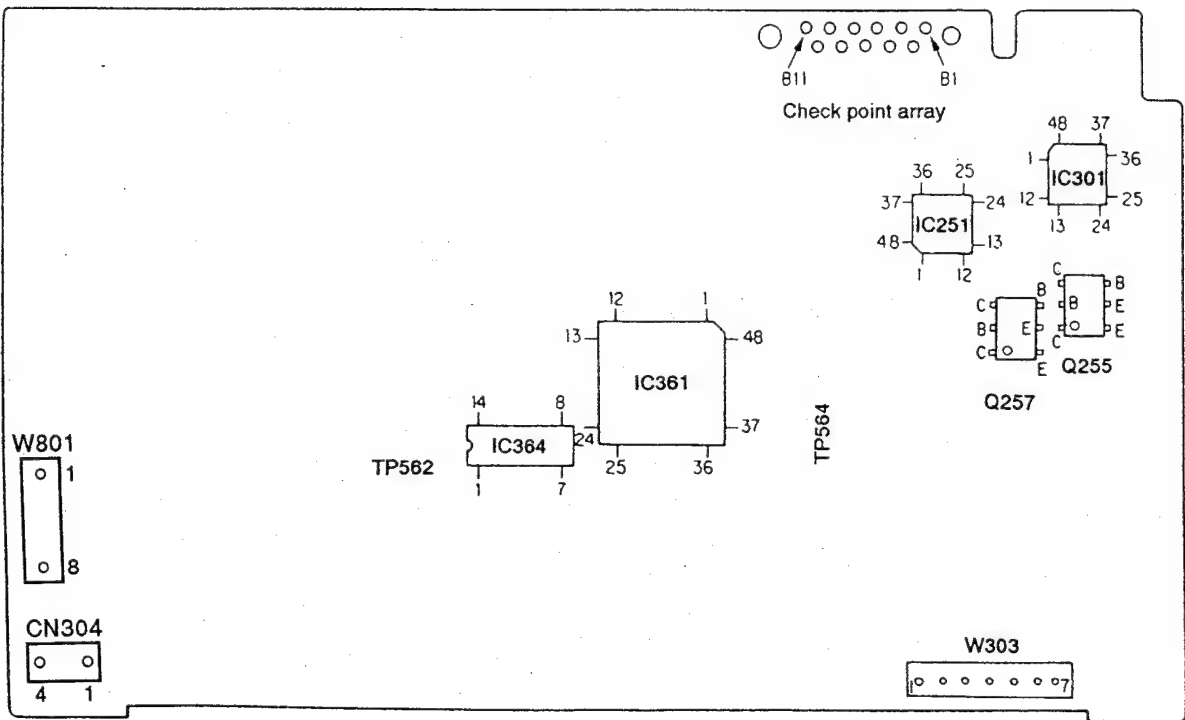
6-7. ARRANGEMENT DIAGRAMS FOR ADJUSTMENT PARTS

VC-98P BOARD (COMPONENT SIDE)

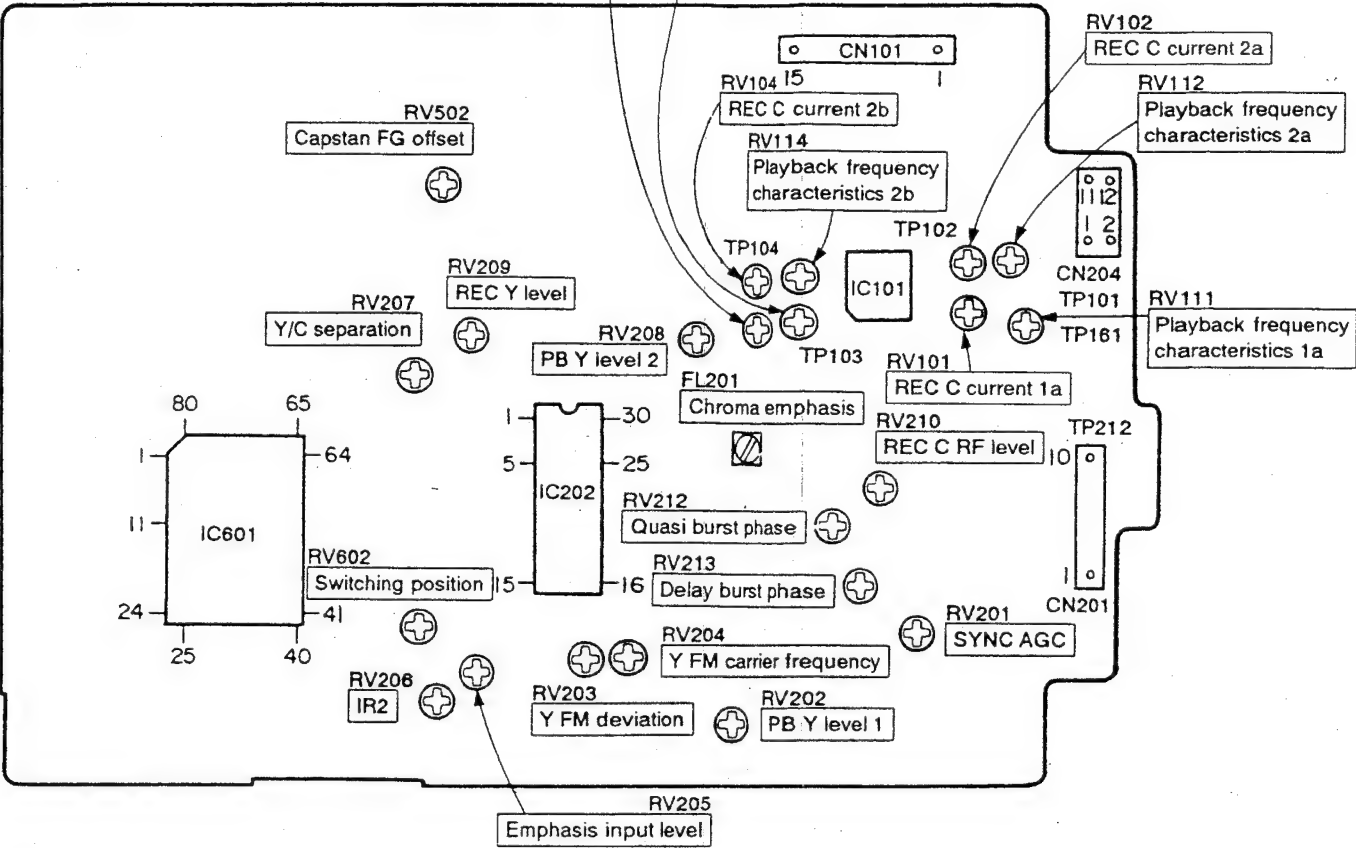
Note: Components indicated by [] are on the conductor side.



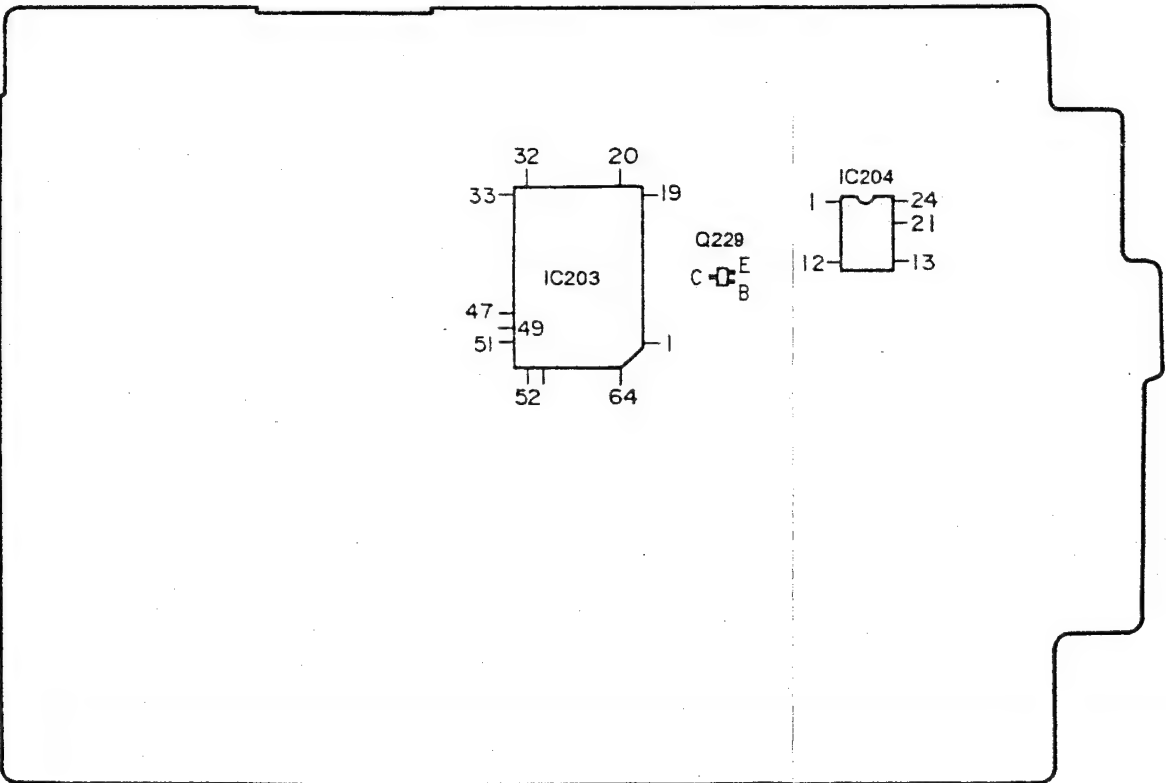
VC-98P BOARD (CONDUCTOR SIDE)



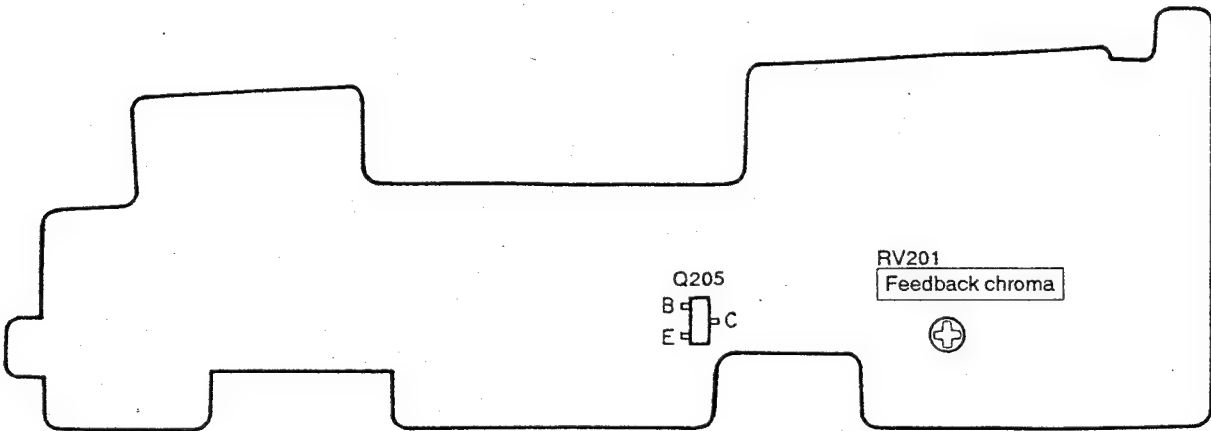
VS-72 BOARD (COMPONENT SIDE)



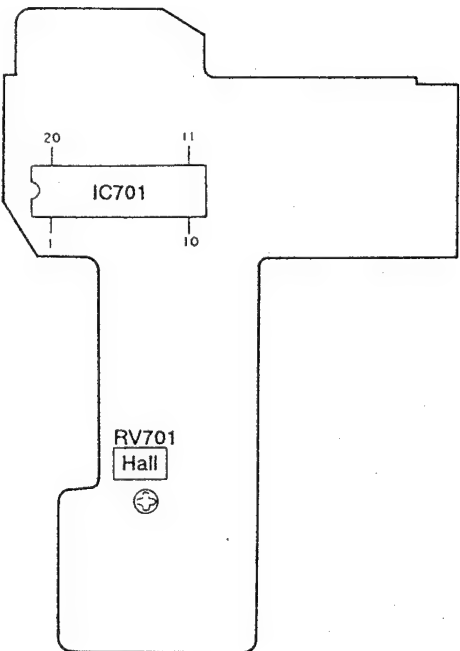
VS-72 BOARD (CONDUCTOR SIDE)



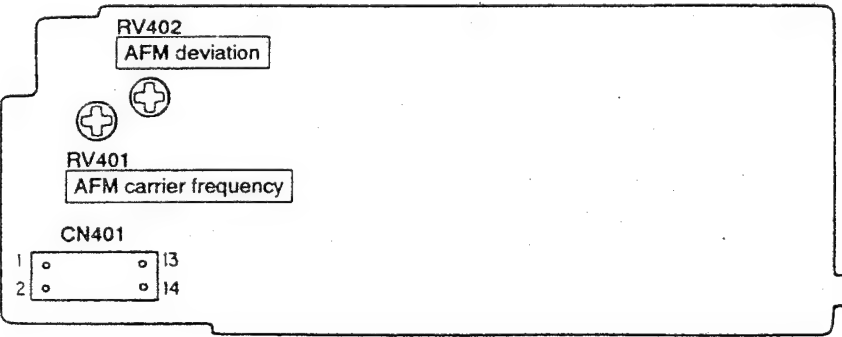
PD-18P BOARD (CONDUCTOR SIDE)



LD-43 BOARD (CONDUCTOR SIDE)



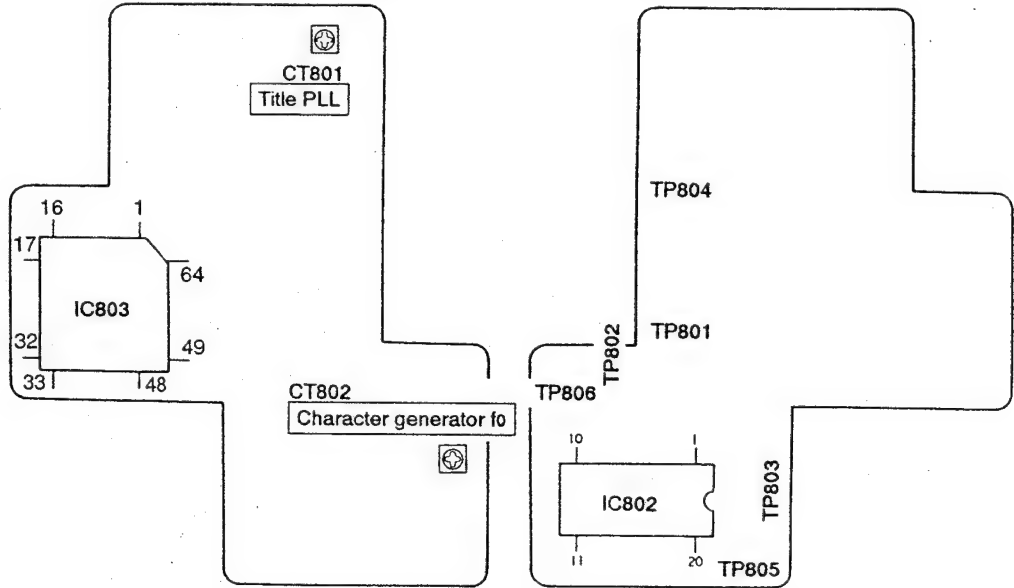
AU-95P BOARD (COMPONENT SIDE)



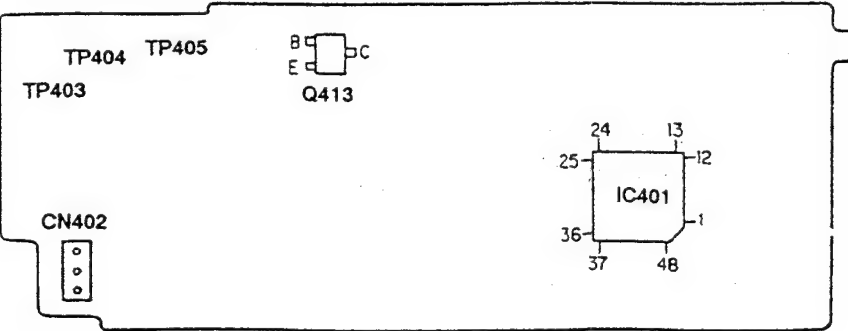
TI-37P BOARD

(COMPONENT SIDE)

(CONDUCTOR SIDE)



AU-95P BOARD (CONDUCTOR SIDE)





FUJIX-8
VIDEO
SYSTEM

8

SCHEMATICS

AE/UK Models

FUJIX-8 CAMCORDER

FF60WIDE

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splasher and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED LINE WITH MARK Δ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH FUJI PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY FUJI PHOTO FILM CO., LTD.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE Δ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER SES COMPOSANTS QUE PAR DES PIÈCES FUJI DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR FUJI.

Contents

1. BLOCK DIAGRAMS

1-1. OVERALL BLOCK	5
1-2. CAMERA BLOCK	
1-2-1. CAMERA BLOCK (1/2)	6
1-2-2. CAMERA BLOCK (2/2)	7
1-3. AUTO-FOCUS BLOCK	8
1-4. DIGITAL TITLER BLOCK	9
1-5. VIDEO (1) BLOCK	10
1-6. CAMERA REC BLOCK	11
1-7. VIDEO (2) BLOCK	12
1-8. SERVO BLOCK	13
1-9. SYSTEM CONTROL BLOCK	14
1-10. AUDIO BLOCK	15
1-11. VIEWFINDER BLOCK	16
1-12. POWER SUPPLY BLOCK	17

2. SCHEMATIC DIAGRAMS

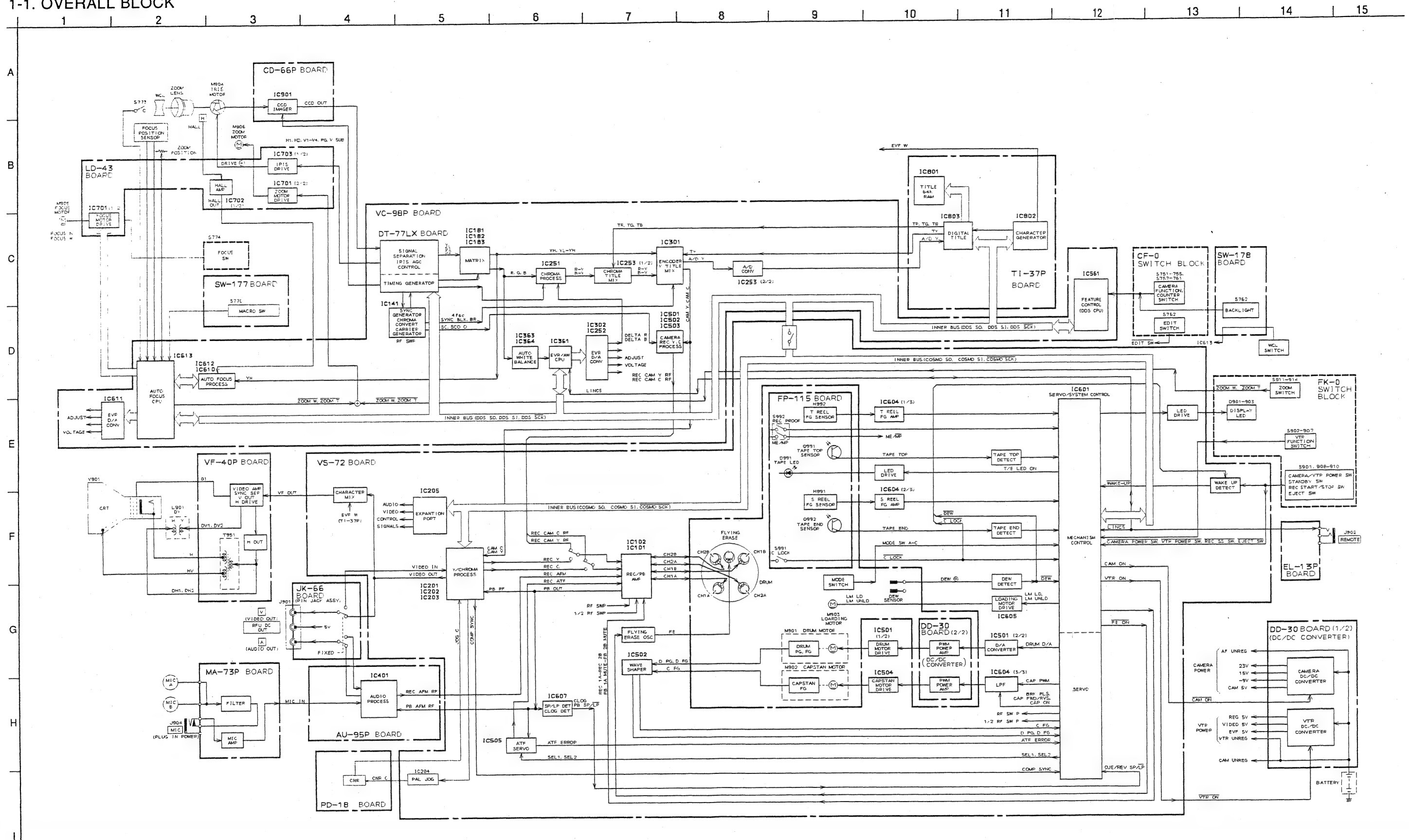
2-1. NOTES	18
2-2. OVERALL CONNECTIONS	19
2-3. VC-98P BOARD	
2-3-1. VC-98P BOARD (1/4)	20
VC-98P BOARD COMPONENT LOCATIONS	21
2-3-2. VC-98P BOARD (2/4)	22
VC-98P BOARD COMPONENT LOCATIONS	23
2-3-3. VC-98P BOARD (3/4)	24
VC-98P BOARD COMPONENT LOCATIONS	25
2-3-4. VC-98P BOARD (4/4)	26
VC-98P BOARD COMPONENT LOCATIONS	27
2-4. CD-66P BOARD	28
CD-66P BOARD COMPONENT LOCATIONS	29
2-5. LD-43 BOARD	30
LD-43 BOARD COMPONENT LOCATIONS	31
2-6. TI-37P BOARD	32
TI-37P BOARD COMPONENT LOCATIONS	33
2-7. VS-72 BOARD	
2-7-1. VS-72 BOARD (1/3)	34
VS-72 BOARD COMPONENT LOCATIONS	35
2-7-2. VS-72 BOARD (2/3)	36
VS-72 BOARD COMPONENT LOCATIONS	37
2-7-3. VS-72 BOARD (3/3)	38
VS-72 BOARD COMPONENT LOCATIONS	39

Contents

FF60WIDE SCHEMATICS

2-8. AU-95P, MA-73P, EL-13P BOARDS	40
AU-95P, MA-73P, EL-13P BOARD COMPONENT LOCATIONS	41
2-9. CF-0, FK-0, JK-66, FP-115, SW-177/178 BOARDS	42
FP-115, SW-177/178 BOARD COMPONENT LOCATIONS	43
2-10. VF-40P BOARD	44
VF-40P BOARD COMPONENT LOCATIONS	45
2-11. PD-18P BOARD	46
PD-18P BOARD COMPONENT LOCATIONS	47
2-12. DD-30 (DC-DC CONVERTER) BOARD	48
2-13. DT-77LX BOARD	49
2-14. SEMICONDUCTORS	
2-14-1. MAGNIFIED IC's	50
2-14-2. PINS	52

1-1. OVERALL BLOCK



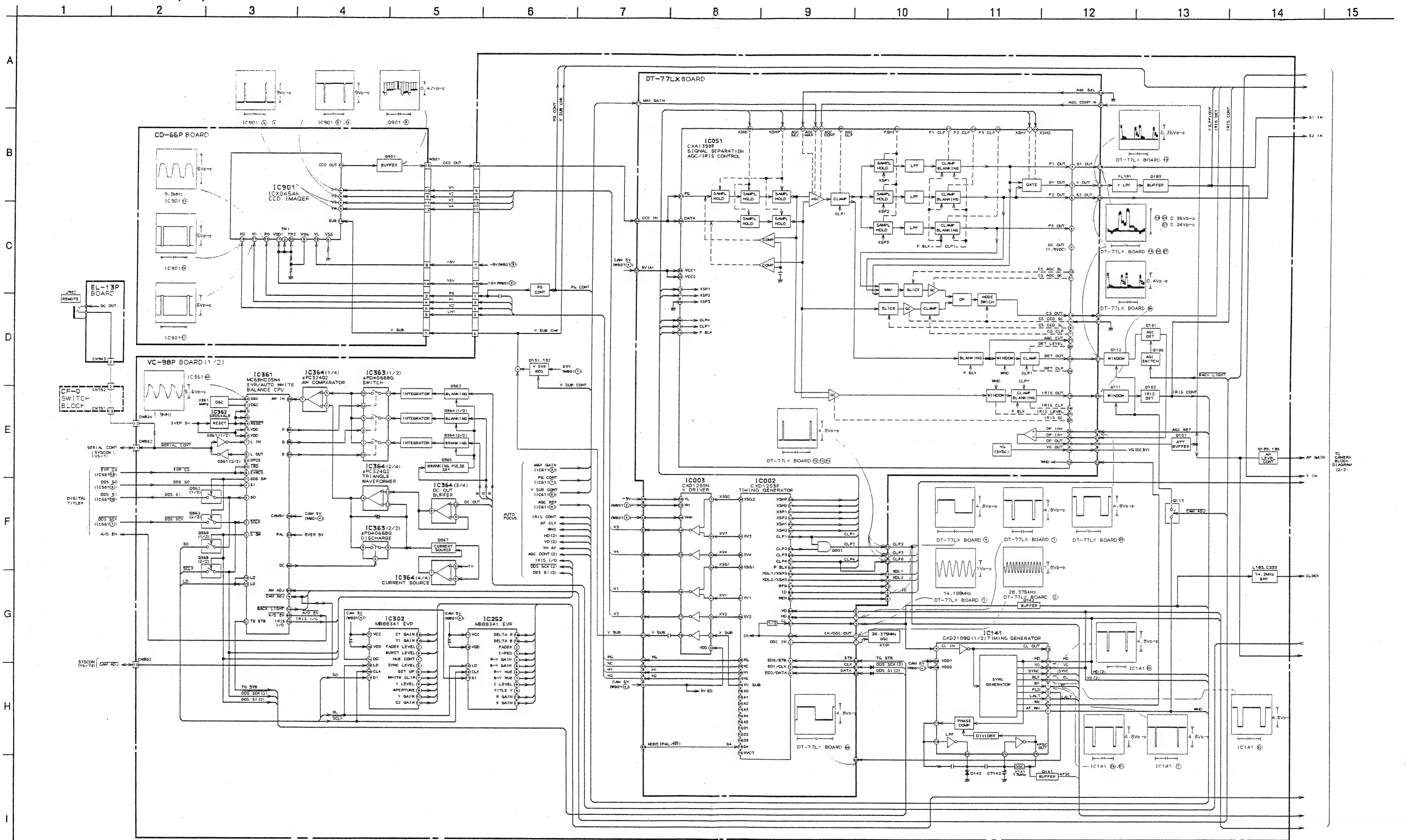
OVERALL BLOCK

1 Block Diagrams

FF60WIDE SCHEMATICS

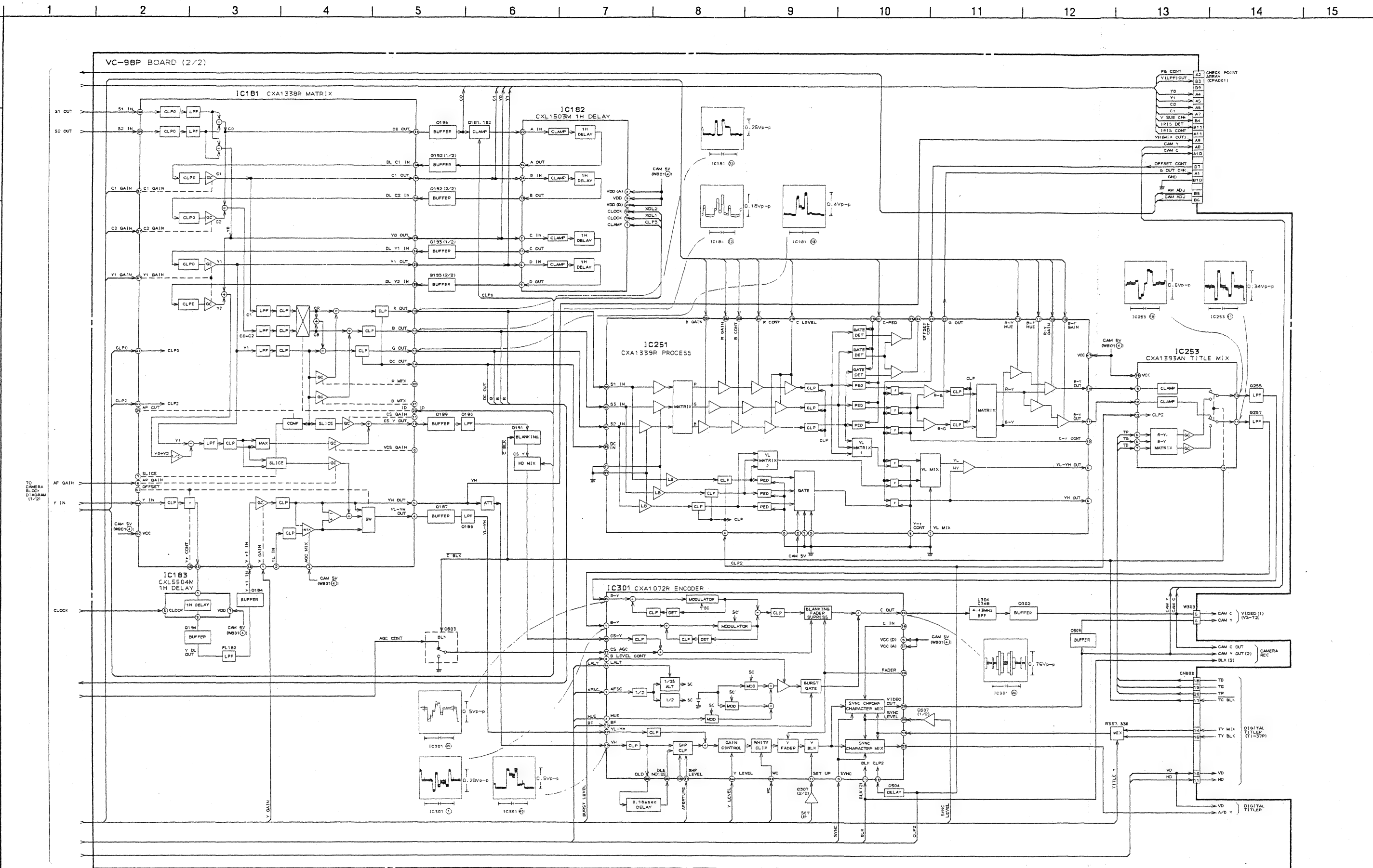
1-2. CAMERA BLOCK

1-2-1. CAMERA BLOCK (1/2)



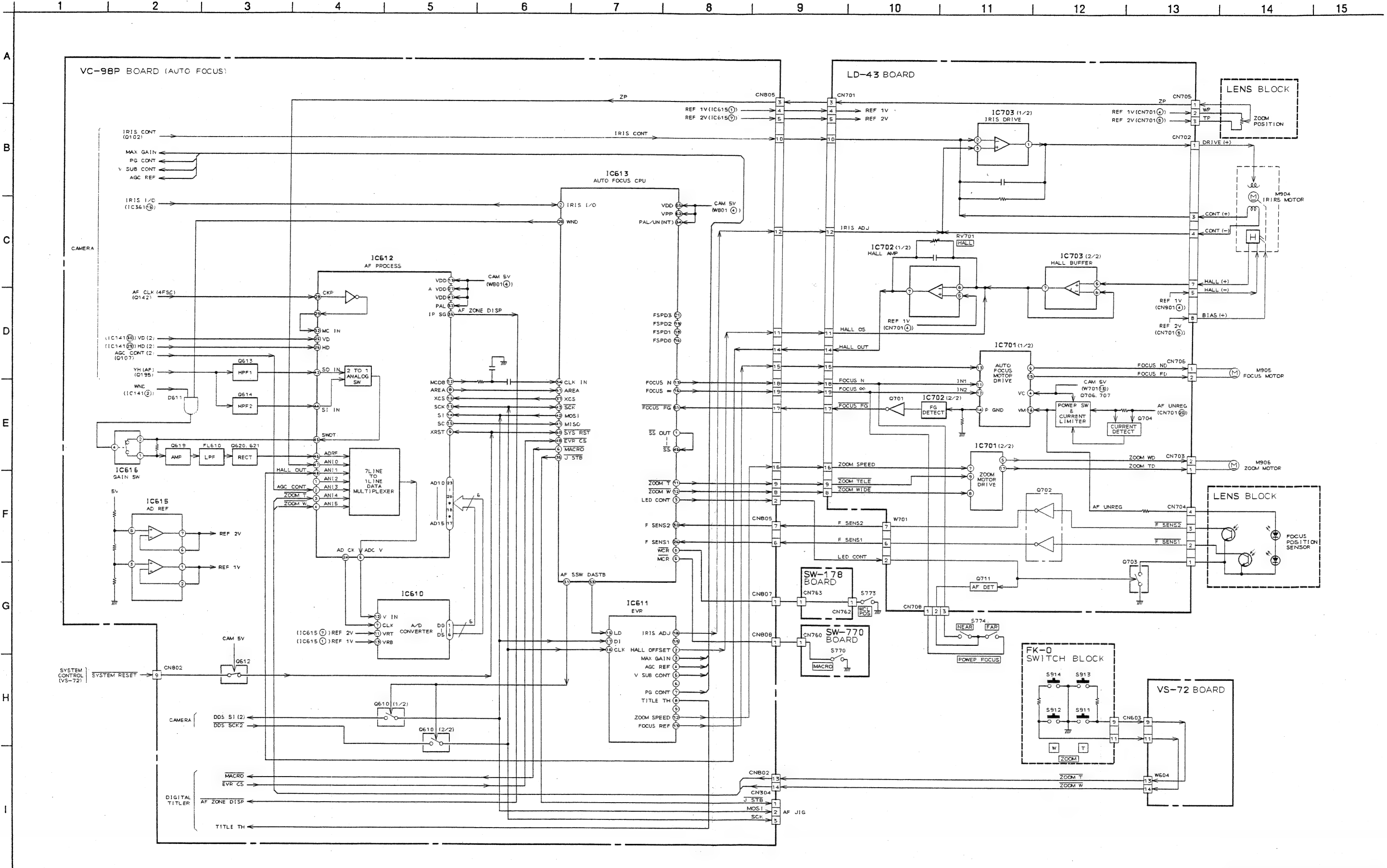
CAMERA BLOCK (1/2)

1-2-2. CAMERA BLOCK (2/2)



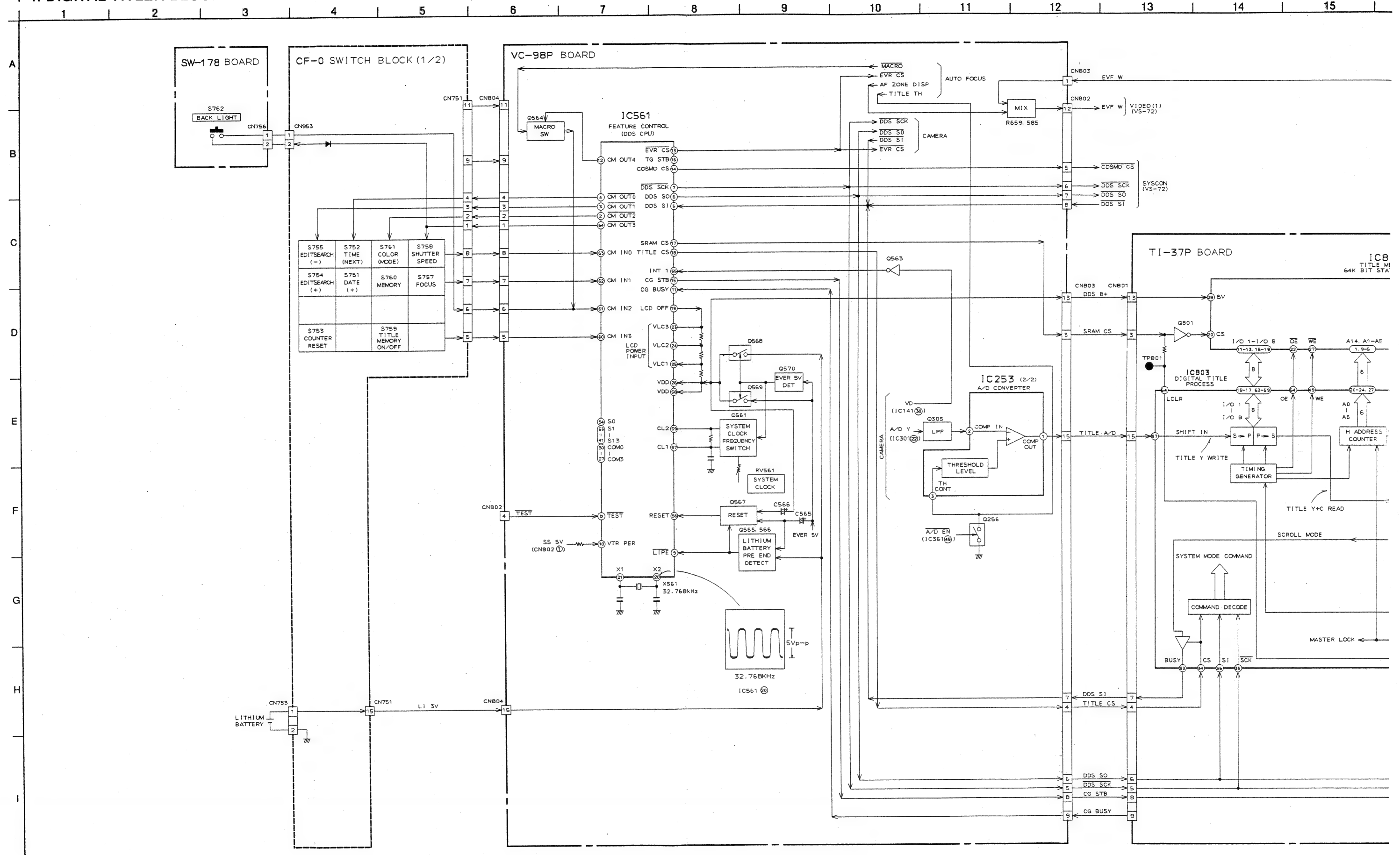
CAMERA BLOCK (2/2)

1-3. AUTO-FOCUS BLOCK



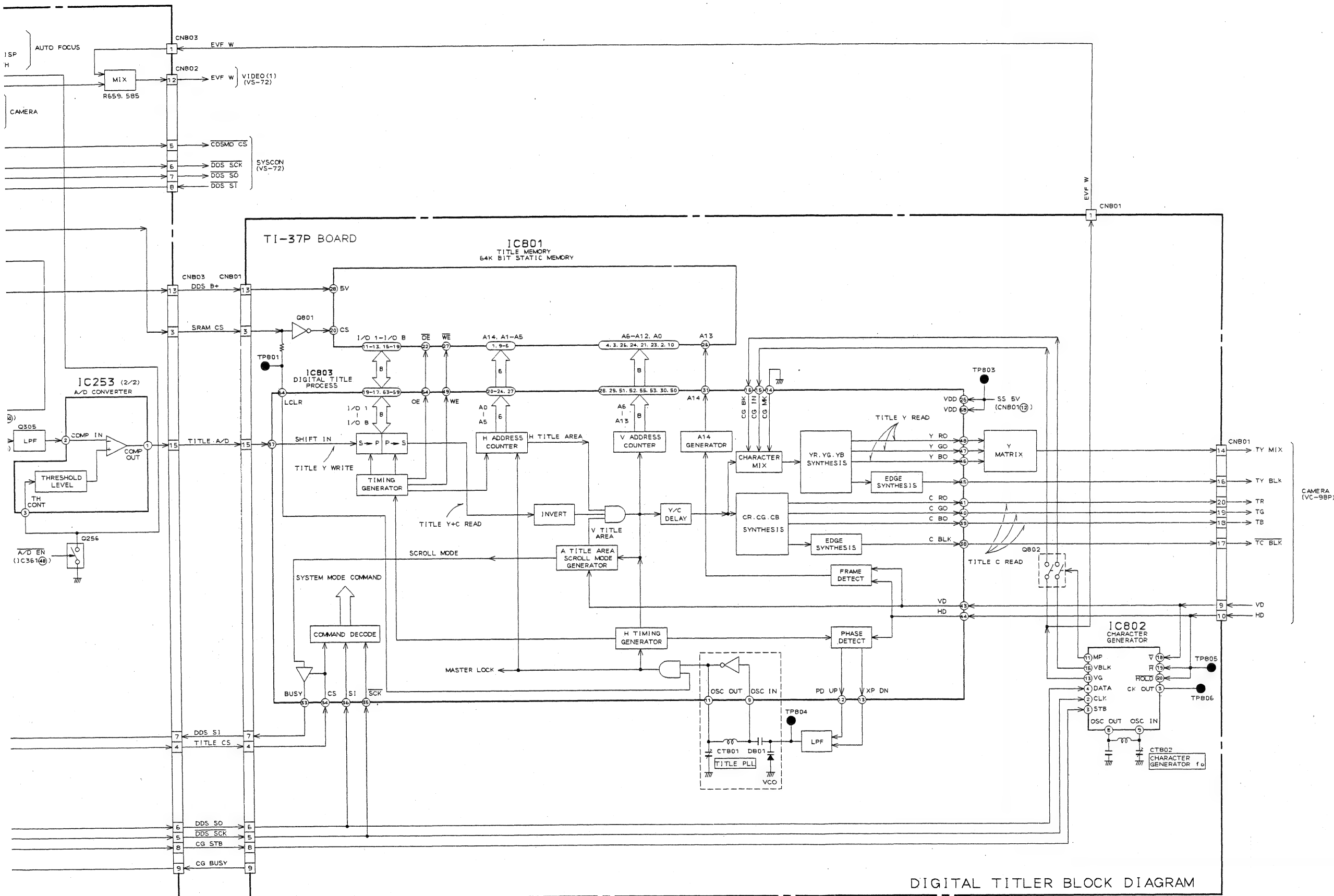
AUTO-FOCUS BLOCK

1-4. DIGITAL TITLER BLOCK



1 Block Diagrams

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

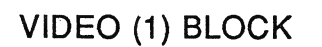


DIGITAL TITLER BLOCK DIAGRAM

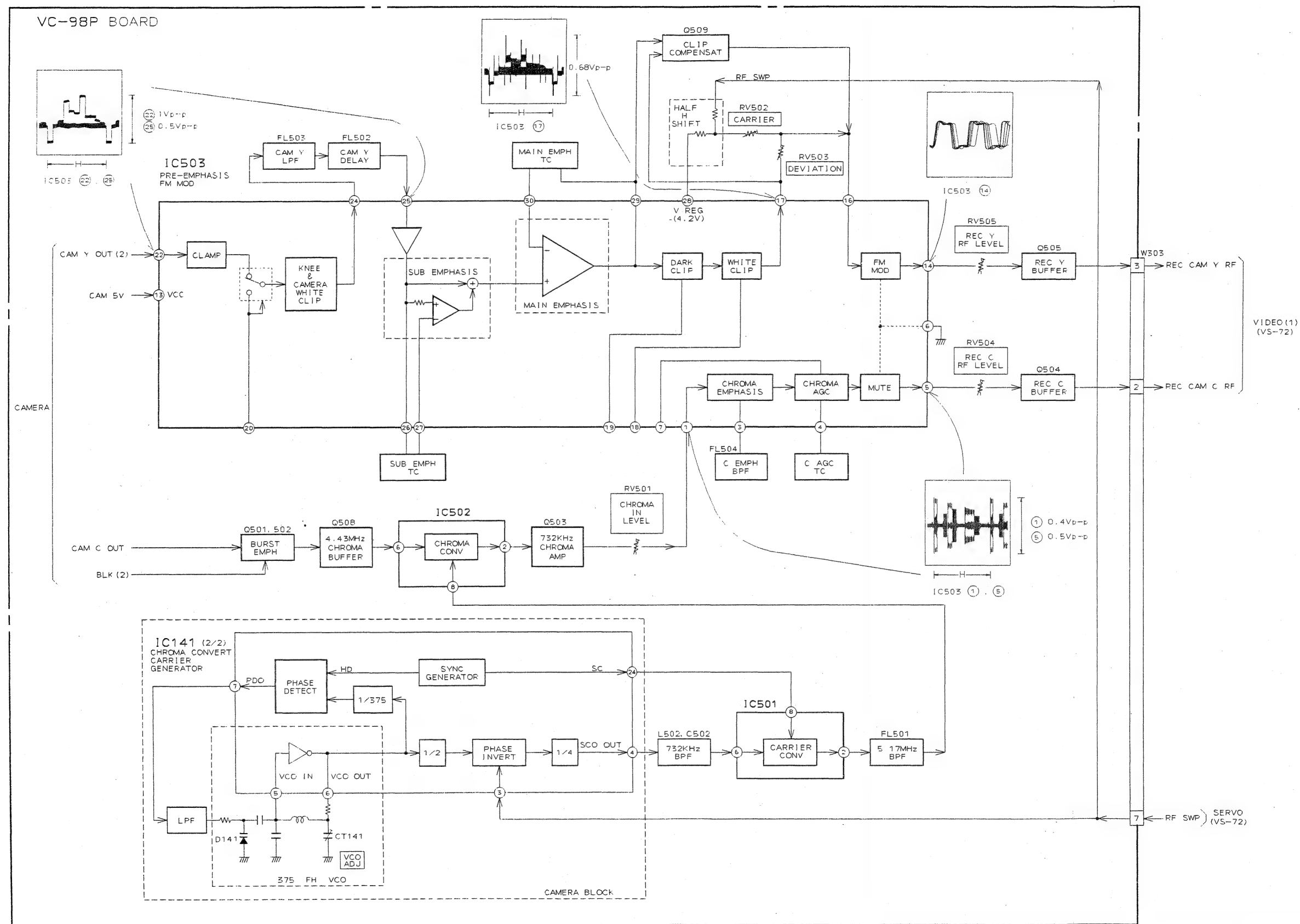
DIGITAL TITLER BLOCK

1-5. VODEO (1) BLOCK





1-6. CAMERA REC BLOCK

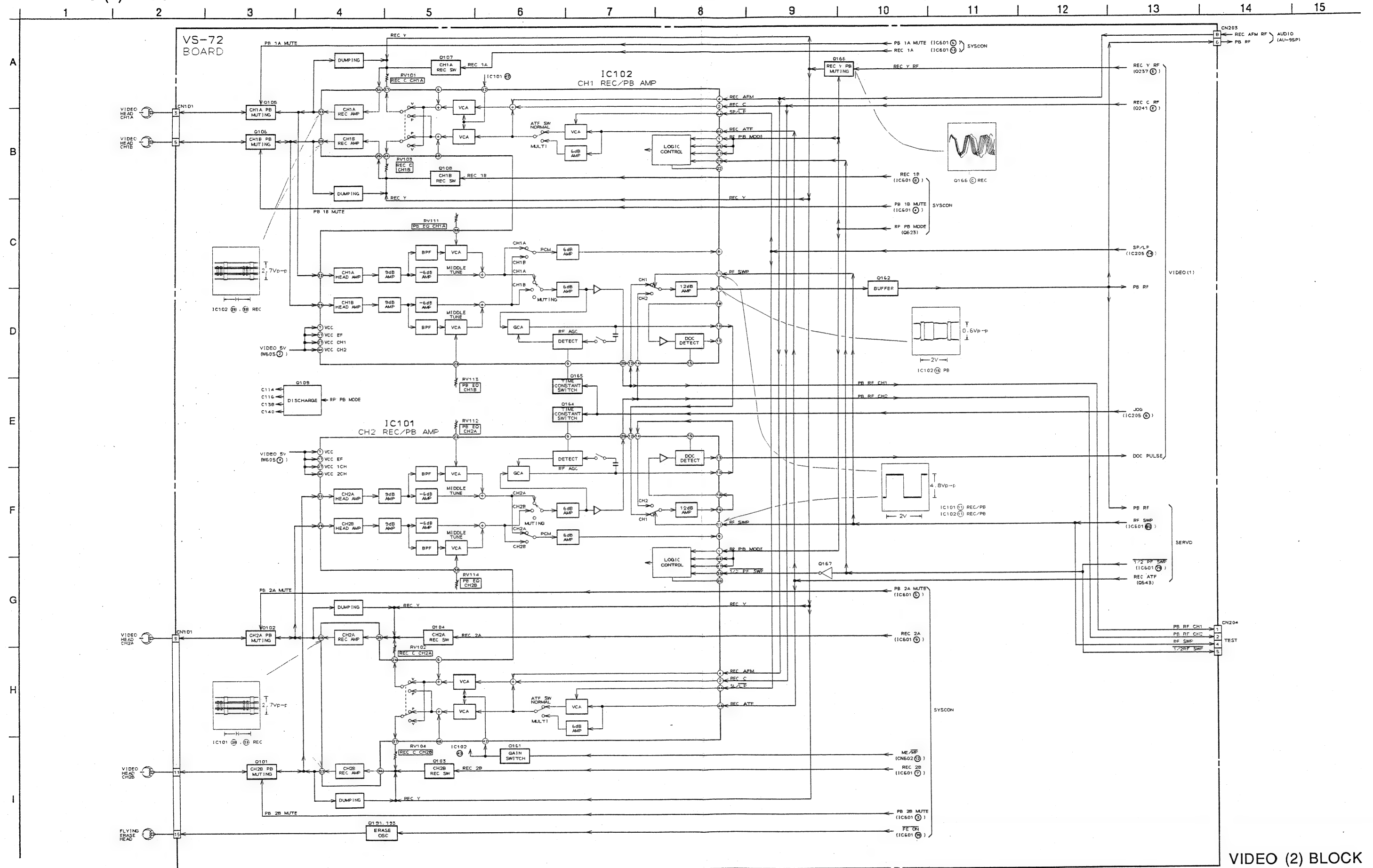


CAMERA REC BLOCK

1 Block Diagrams

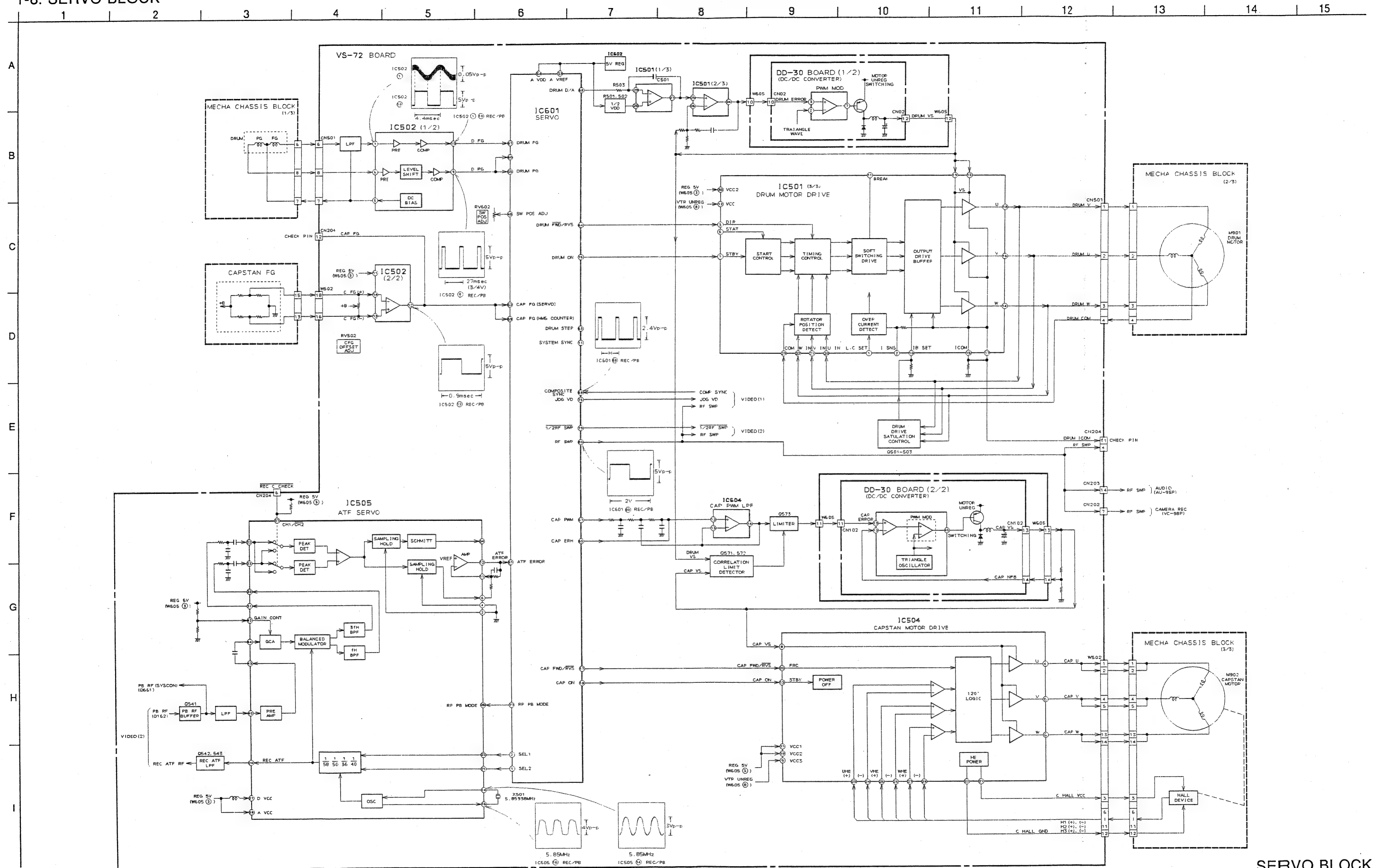
FF60WIDE SCHEMATICS

1-7. VIDEO (2) BLOCK



VIDEO (2) BLOCK

1-8. SERVO BLOCK

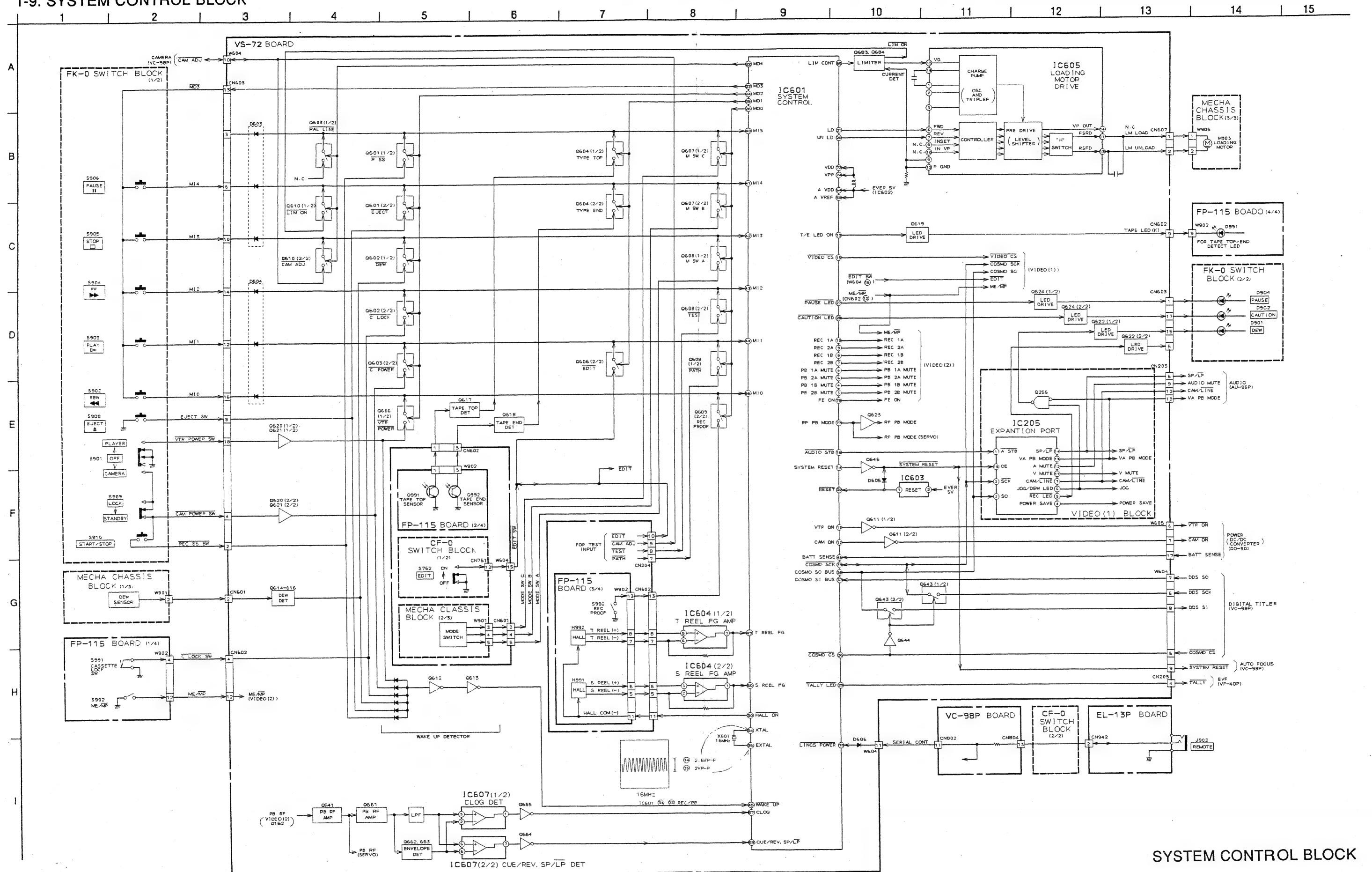


SERVO BLOCK

1 Block Diagrams

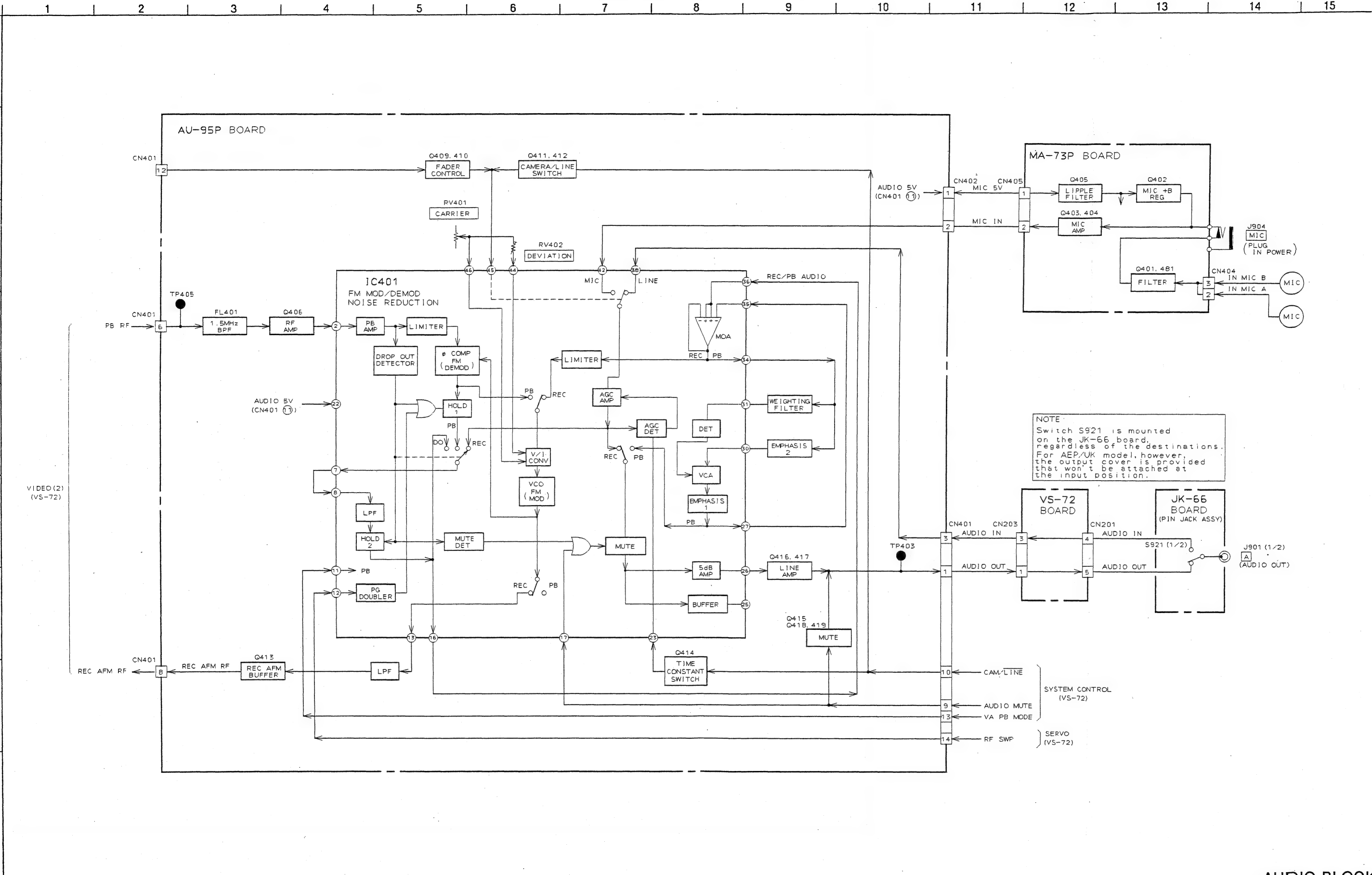
FF60WIDE SCHEMATICS

1-9. SYSTEM CONTROL BLOCK



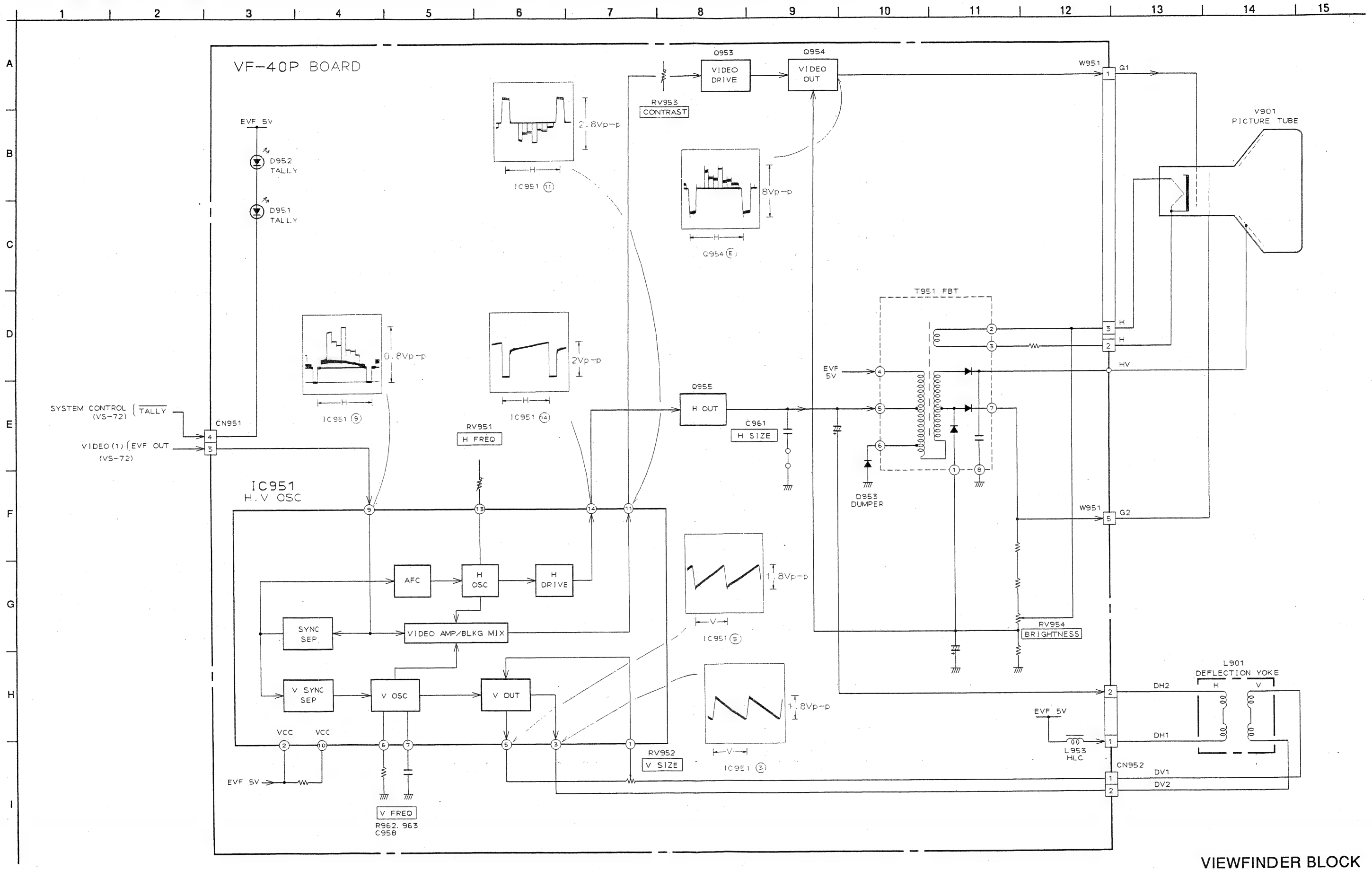
SYSTEM CONTROL BLOCK

1-10. AUDIO BLOCK

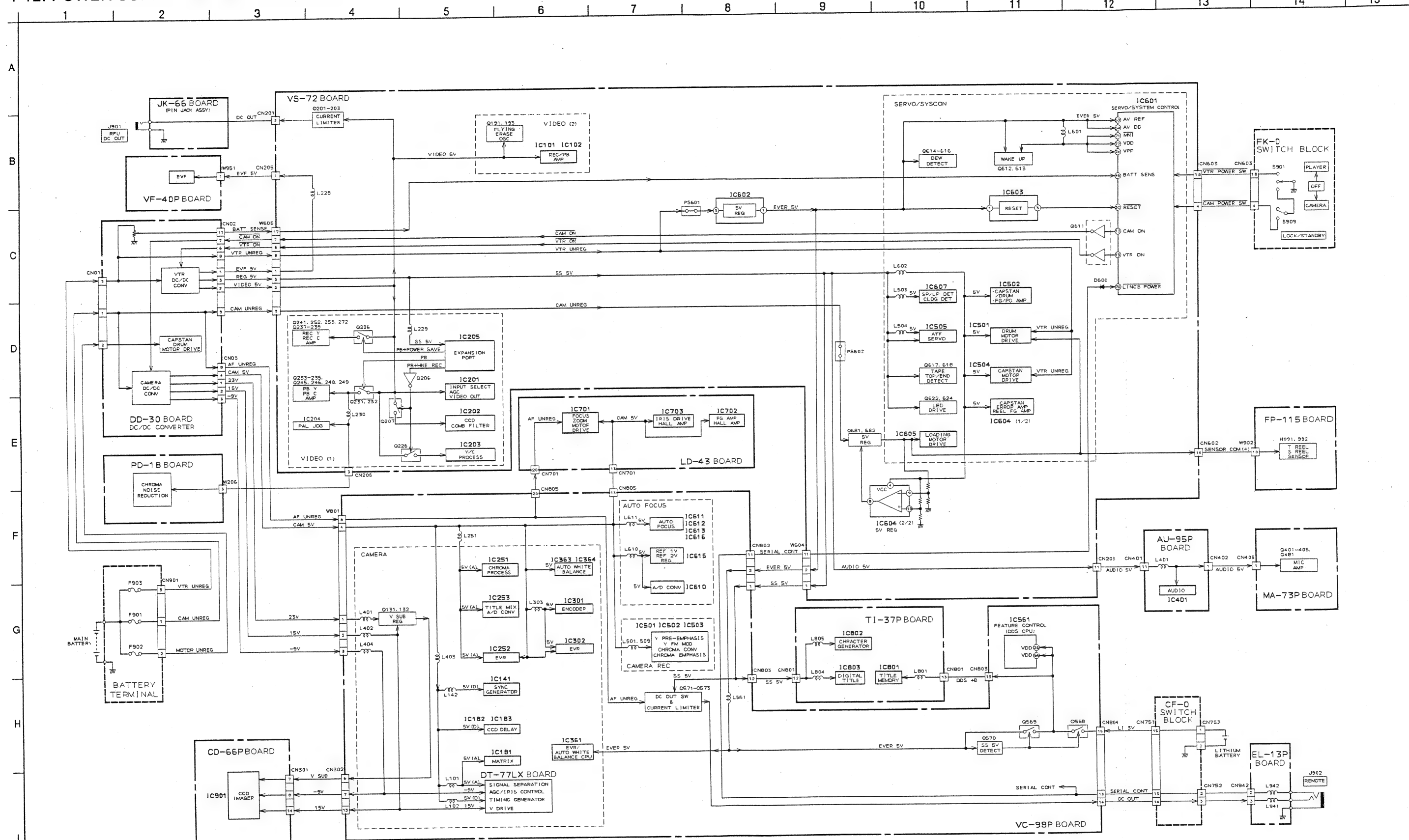


AUDIO BLOCK

1-11. VIEWFINDER BLOCK



1-12. POWER SUPPLY BLOCK











POWER SUPPLY BLOCK



2-1. NOTES for SCHEMATIC DIAGRAMS

This NOTE is common for Schematic Diagrams. (In addition to this, the necessary note is printed in each block.)

[For schematic diagrams]

- Caution when replacing parts.
New parts must be attached after removal of chip.
Be carefull not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
Chip resistors are 1/16W unless otherwise noted.
k Ω : 1000 Ω , M Ω : 1000k Ω .
- All capacitors are in μ F unless otherwise noted.
pF: μ F.
50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
-  : Nonflamable resistor.
-  : Fusible resistor.
-  : Panel designation.
-  : Internal component.
-  : Adjustment for repair.
-  : B+ Line.*
-  : B- Line.*
-  : IN/OUT indication of (+, -) B LINE.*
- Circled numbers refer to waveforms.*
- *: Indicated by the color red.

Note:

The components identified by mark  of dotted line with mark  are critical for safety.
Replace only with part number specified.

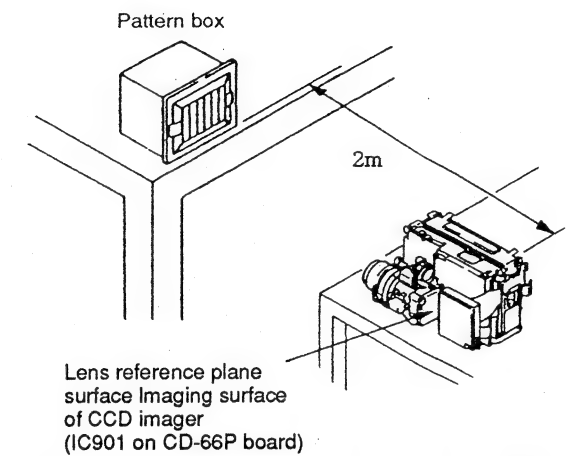
When indicating parts by reference number, please include the board name.

[Measuring conditions, voltage value and waveform]

(CAMERA, DIGITAL TITLE block)

- The object is color bar chart or pattern box.
- Voltages are dc between ground and measurement points.
Readings are taken with a digital multimeter (DC 10M Ω).*
- Voltage variations may be noted due to normal production tolerance.*

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

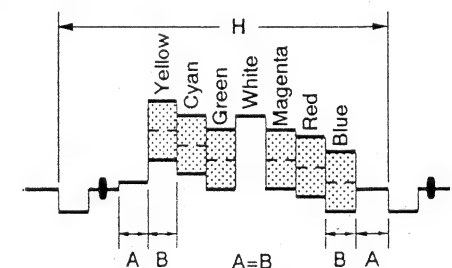


Fig. a (Video output terminal output waveform)

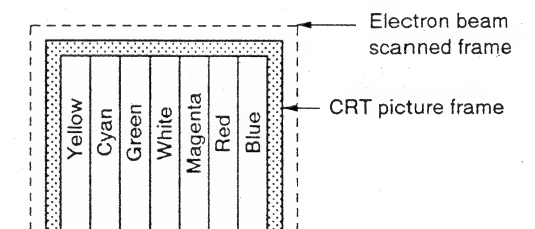


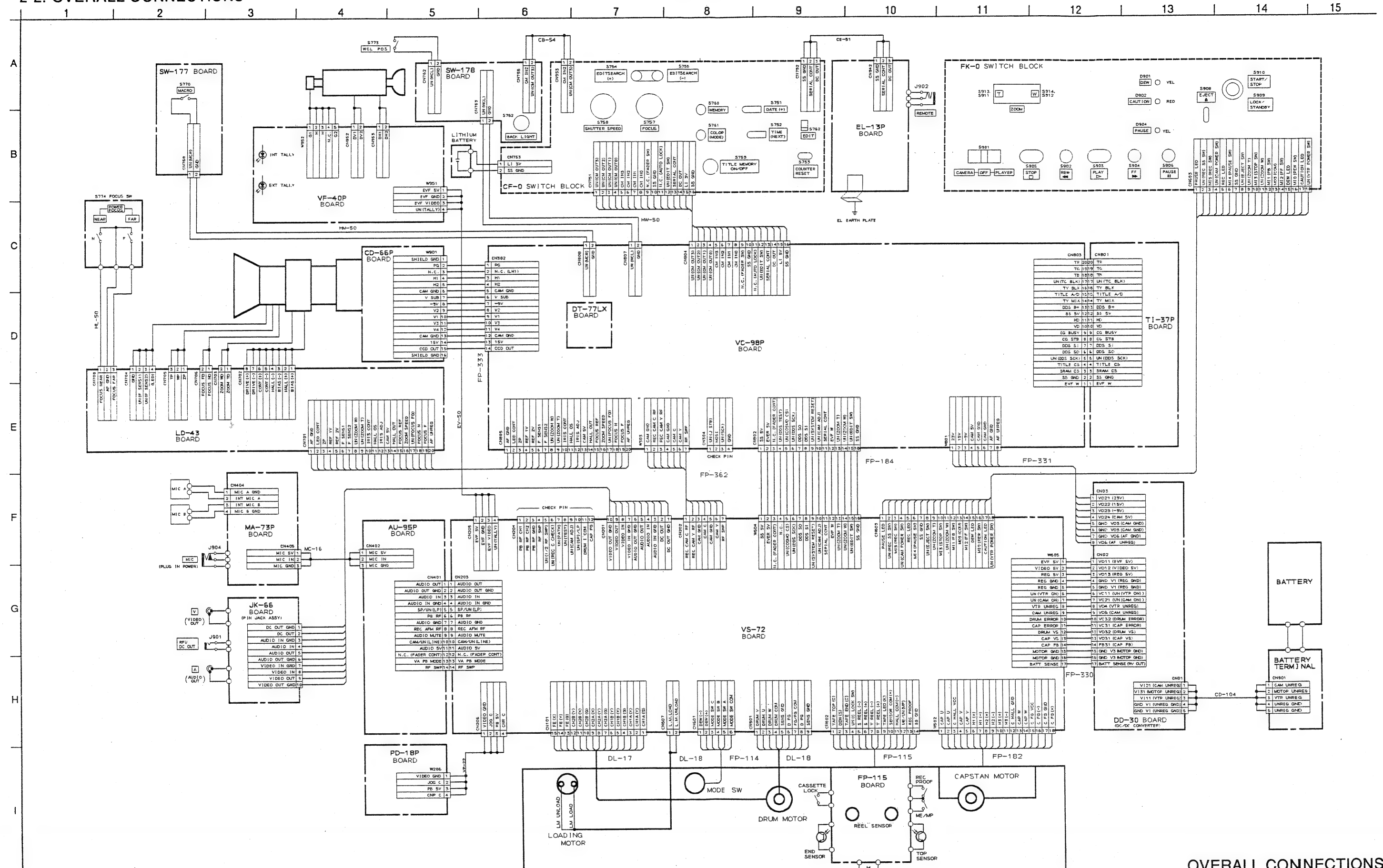
Fig. b (Picture on monitor TV)

(VIDEO, SERVO/SYSTEM CONTROL, MODE CONTROL, AUDIO, VIEWFINDER block)

- Voltages are dc between ground and measurement points.*
- Readings are taken with a color bar signal input.*
- Readings are taken with a digital multimeter (DC 10M Ω).*
- Voltage variations may be noted due to normal production tolerances.*

*: Indicated by the color red.

2-2. OVERALL CONNECTIONS

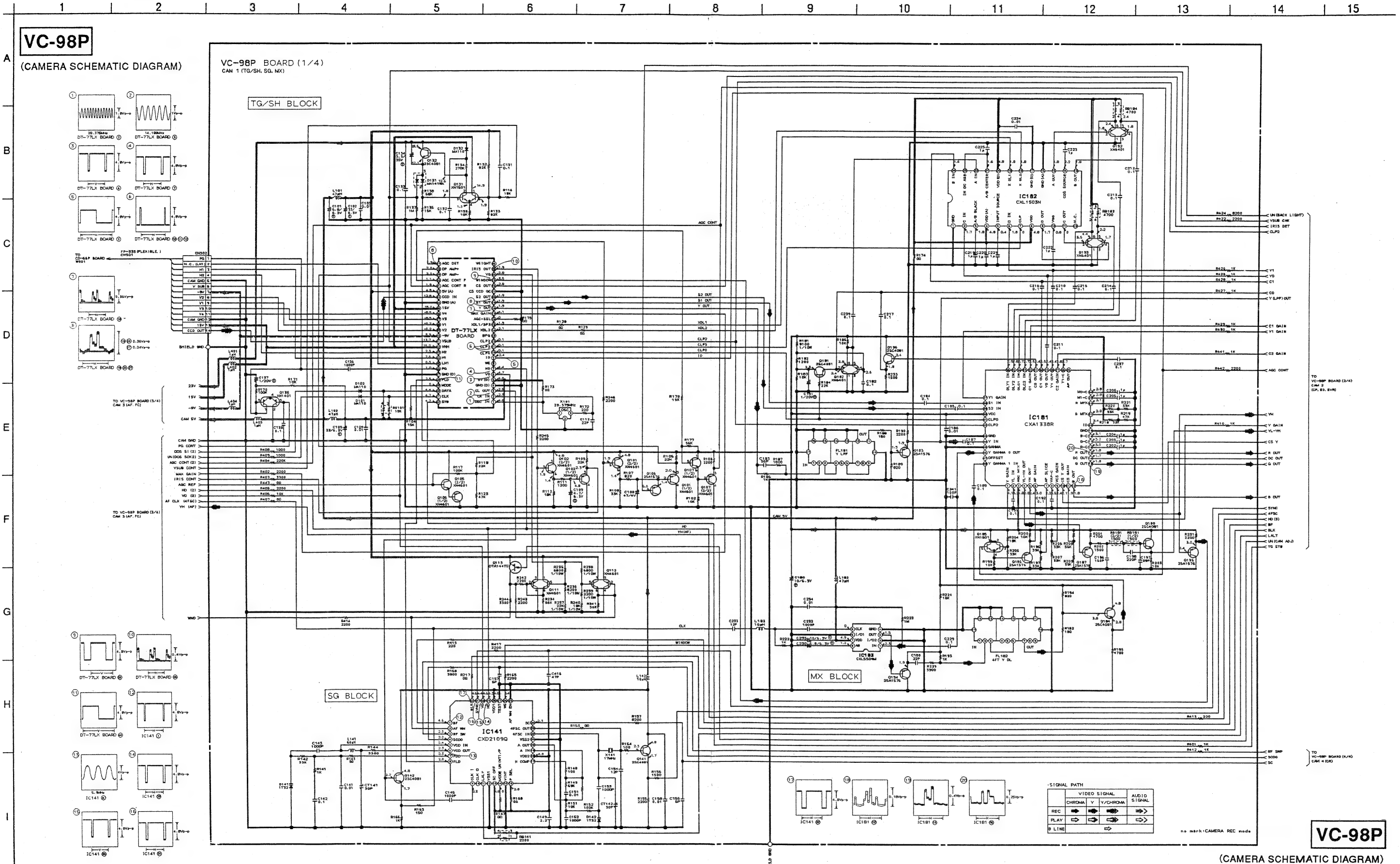


OVERALL CONNECTIONS

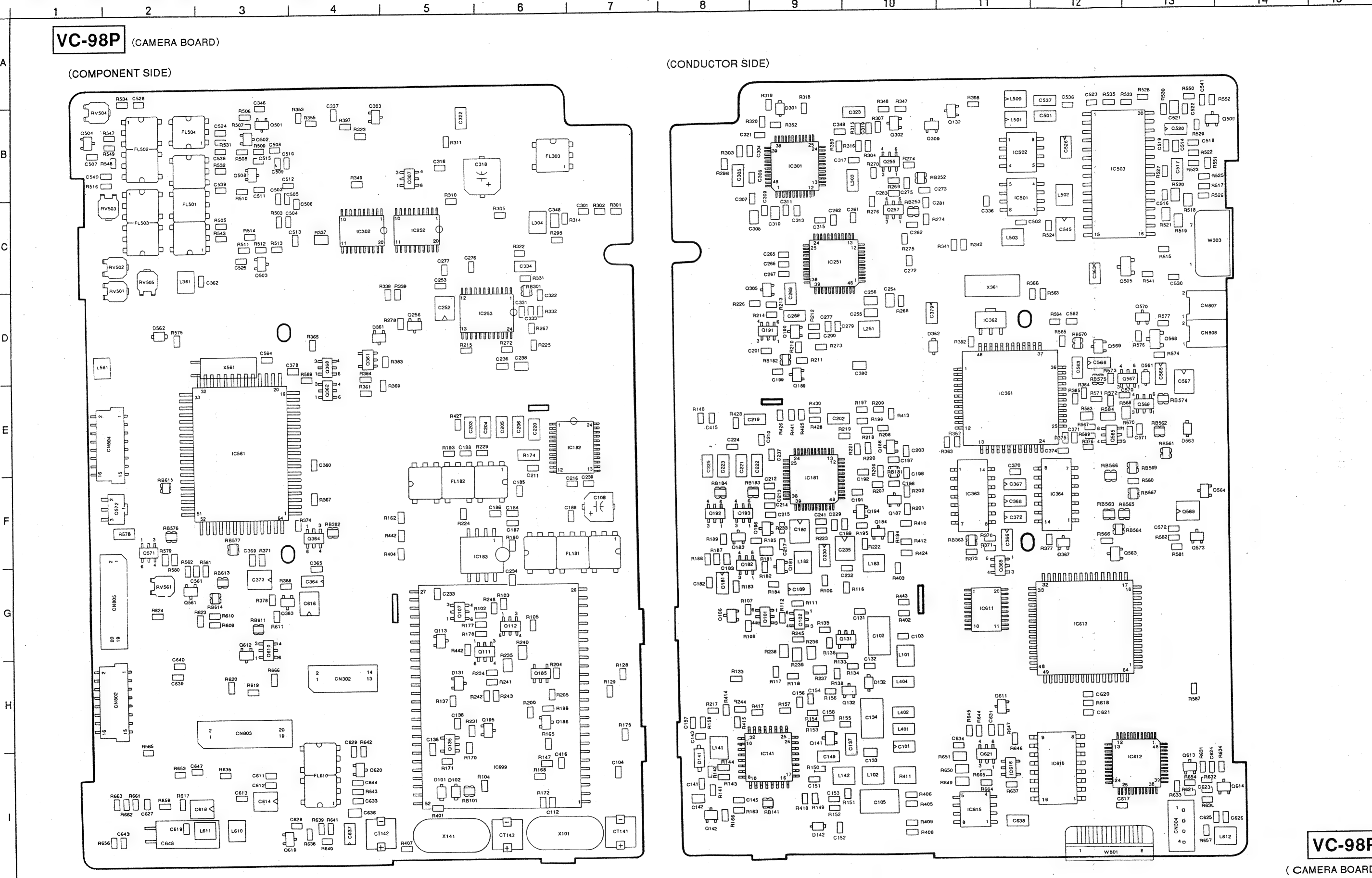
2 Schematic Diagrams

2-3. VC-98P BOARD

2-3-1. VC-98P BOARD (1/4)

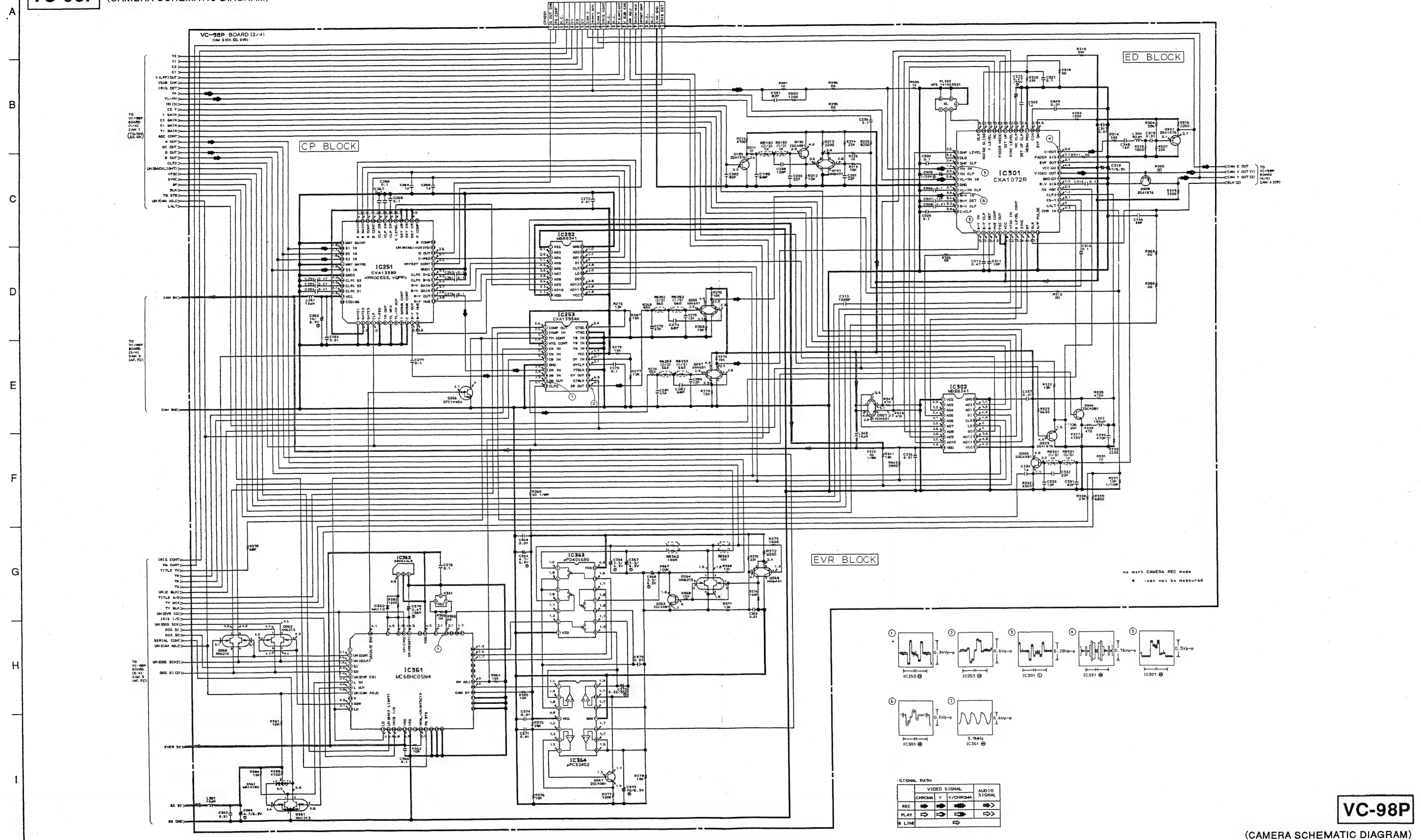


VC-98P BOARD COMPONENT LOCATIONS



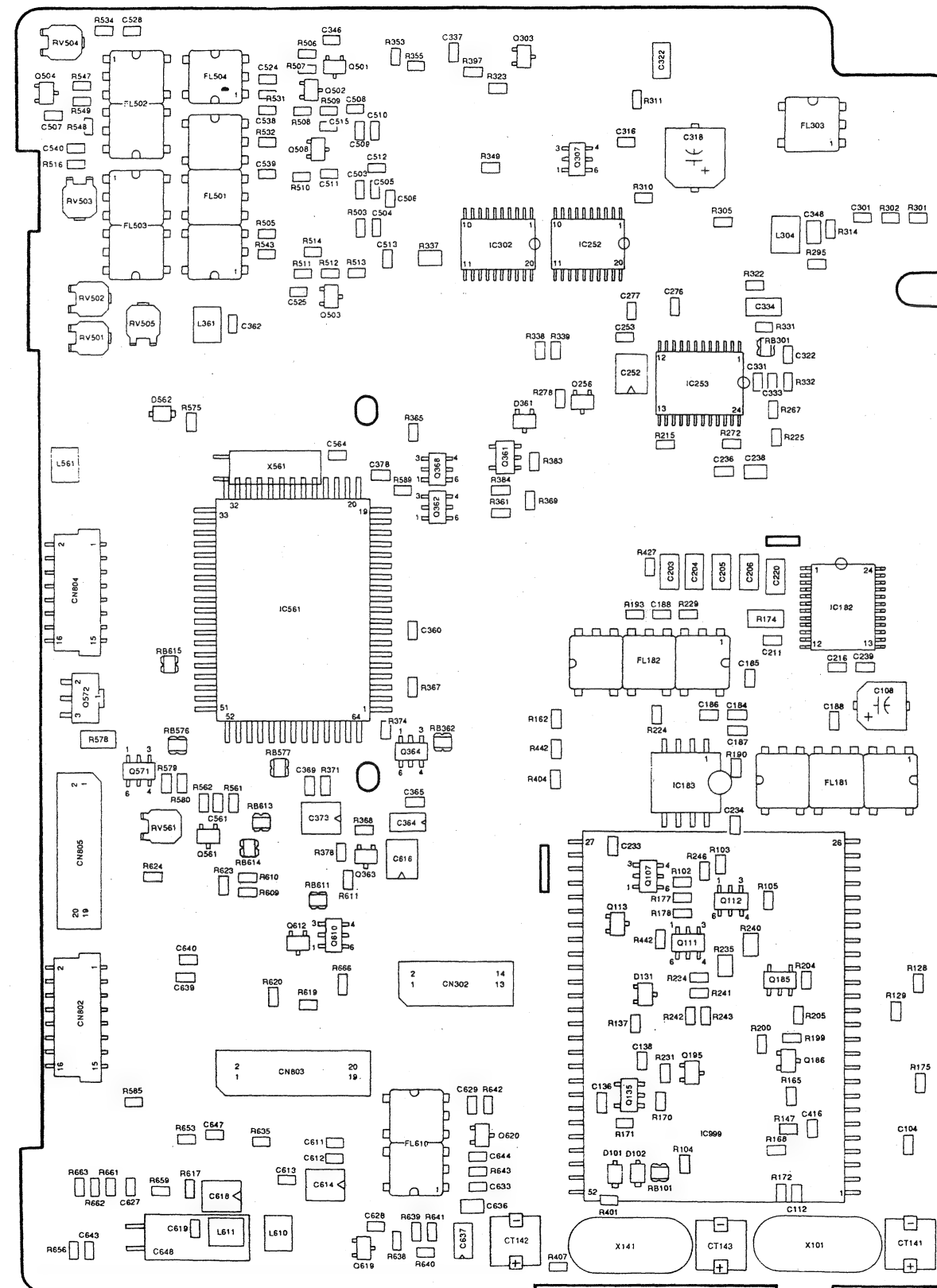
2-3-2. VC-98P BOARD (2/4)

VC-98P (CAMERA SCHEMATIC DIAGRAM) CHECK POINT ARRAY

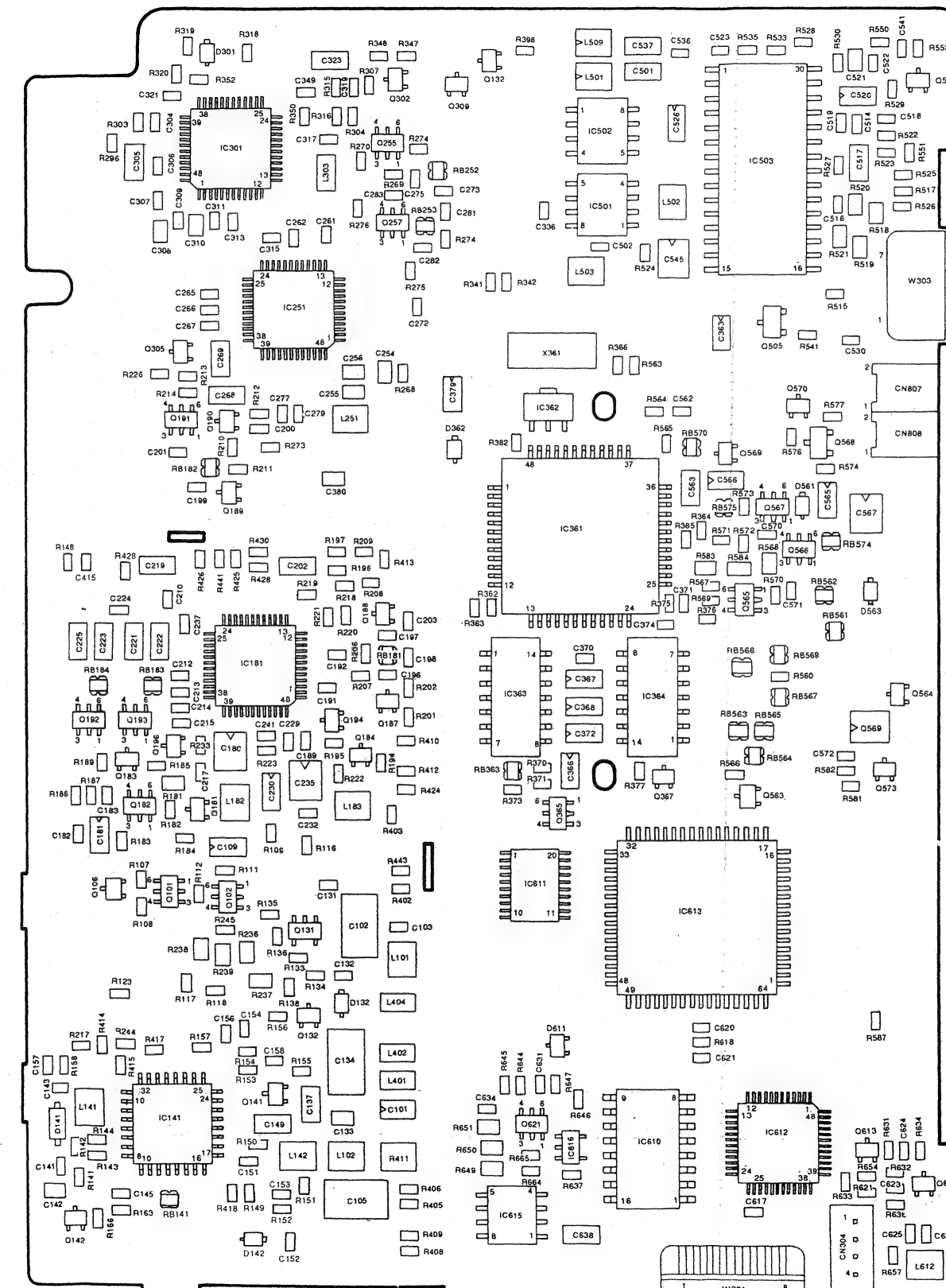


VC-98P (CAMERA BOARD)

(COMPONENT SIDE)



(CONDUCTOR SIDE)

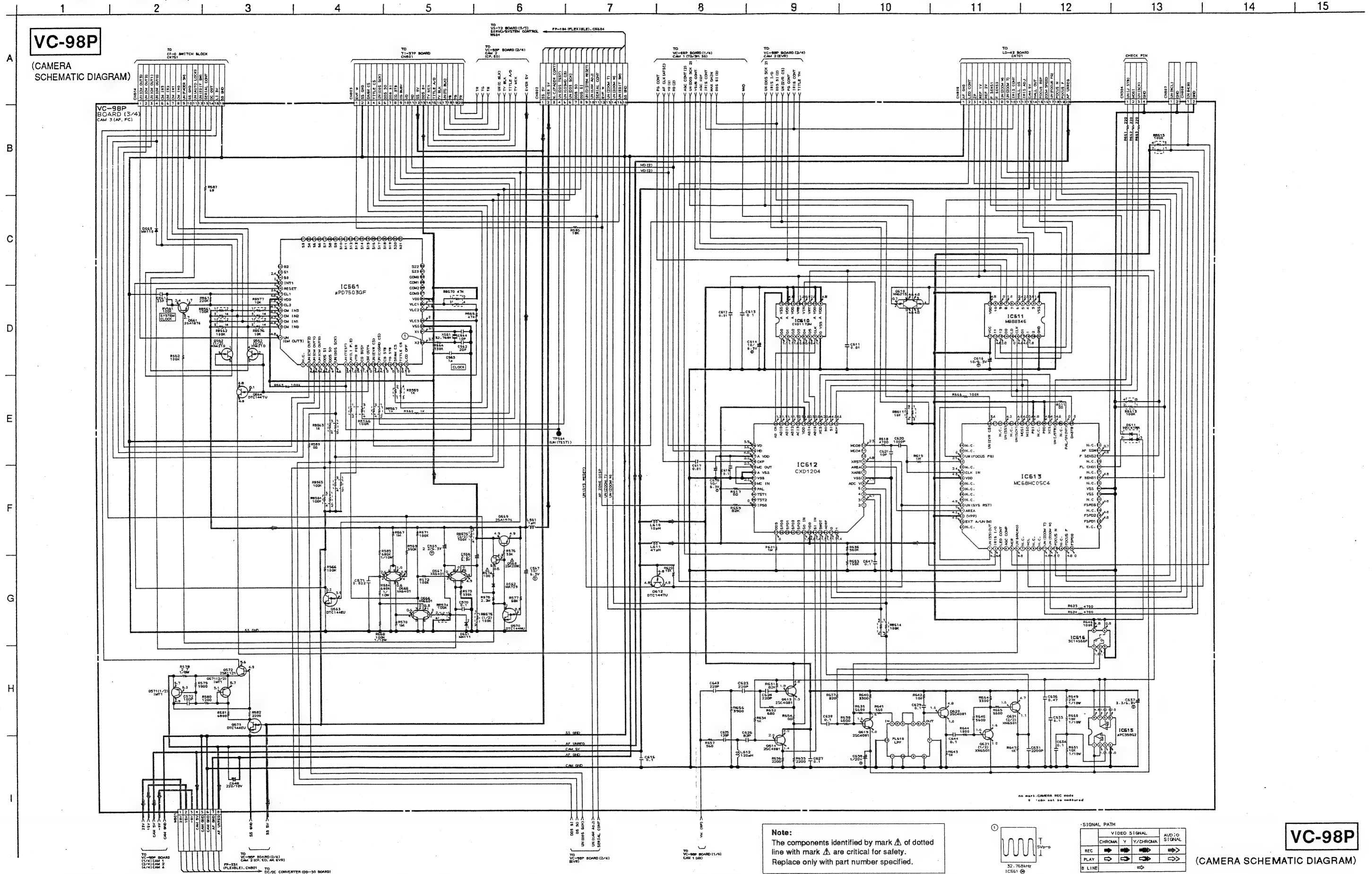


VC-98P

(CAMERA BOARD)

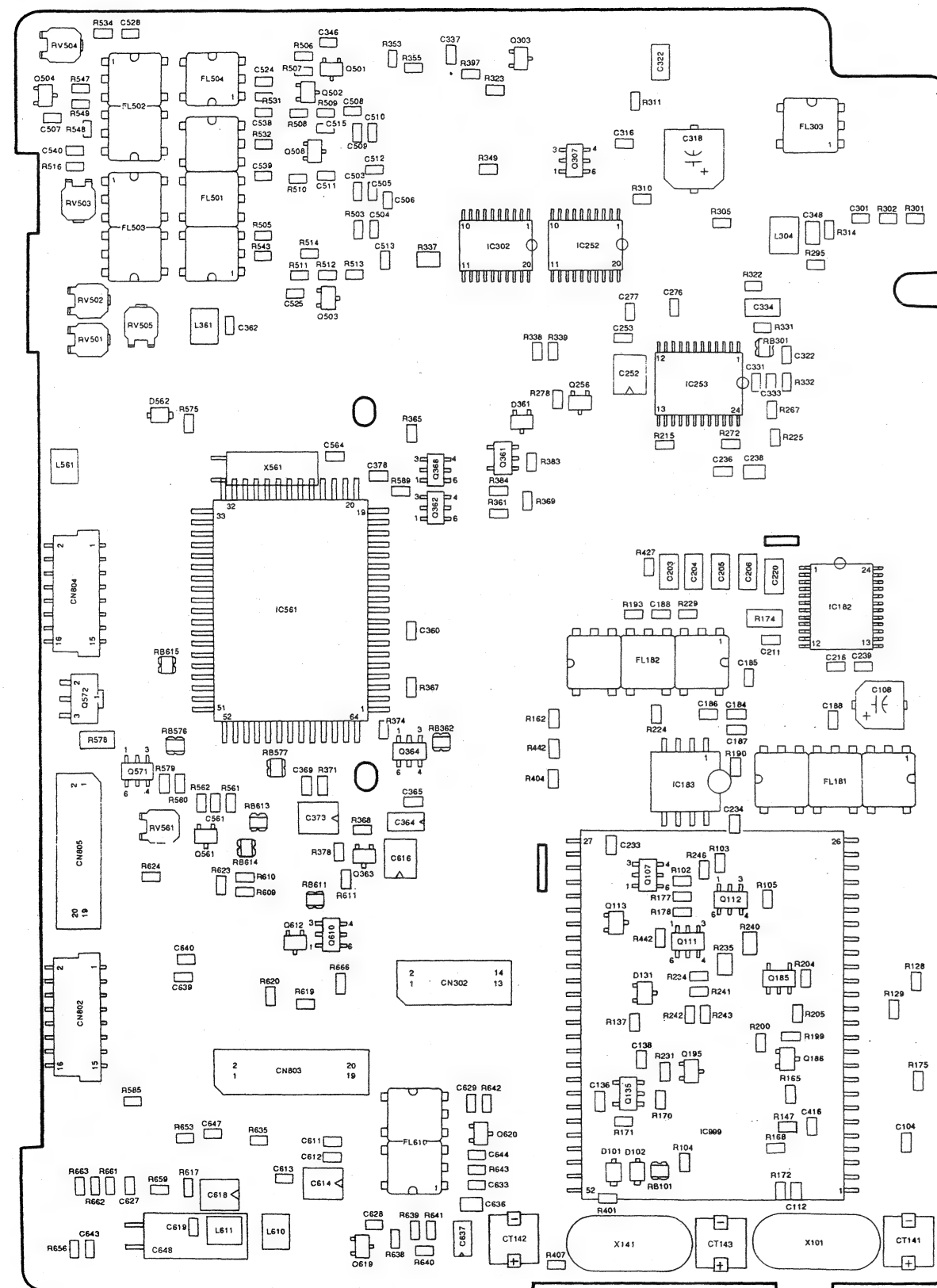
2 Schematic Diagrams

2-3-3. VC-98P BOARD (3/4)

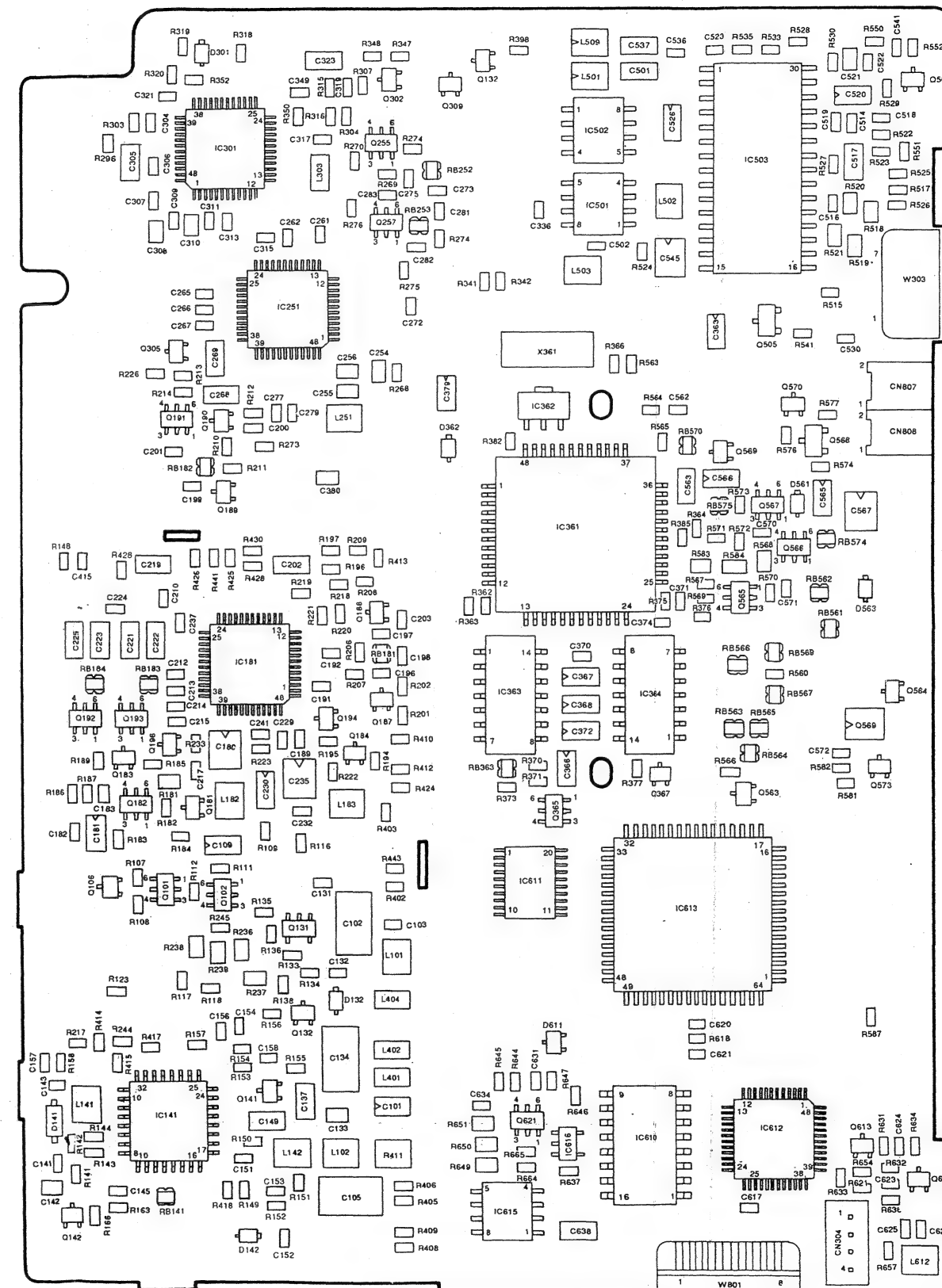


VC-98P (CAMERA BOARD)

(COMPONENT SIDE)



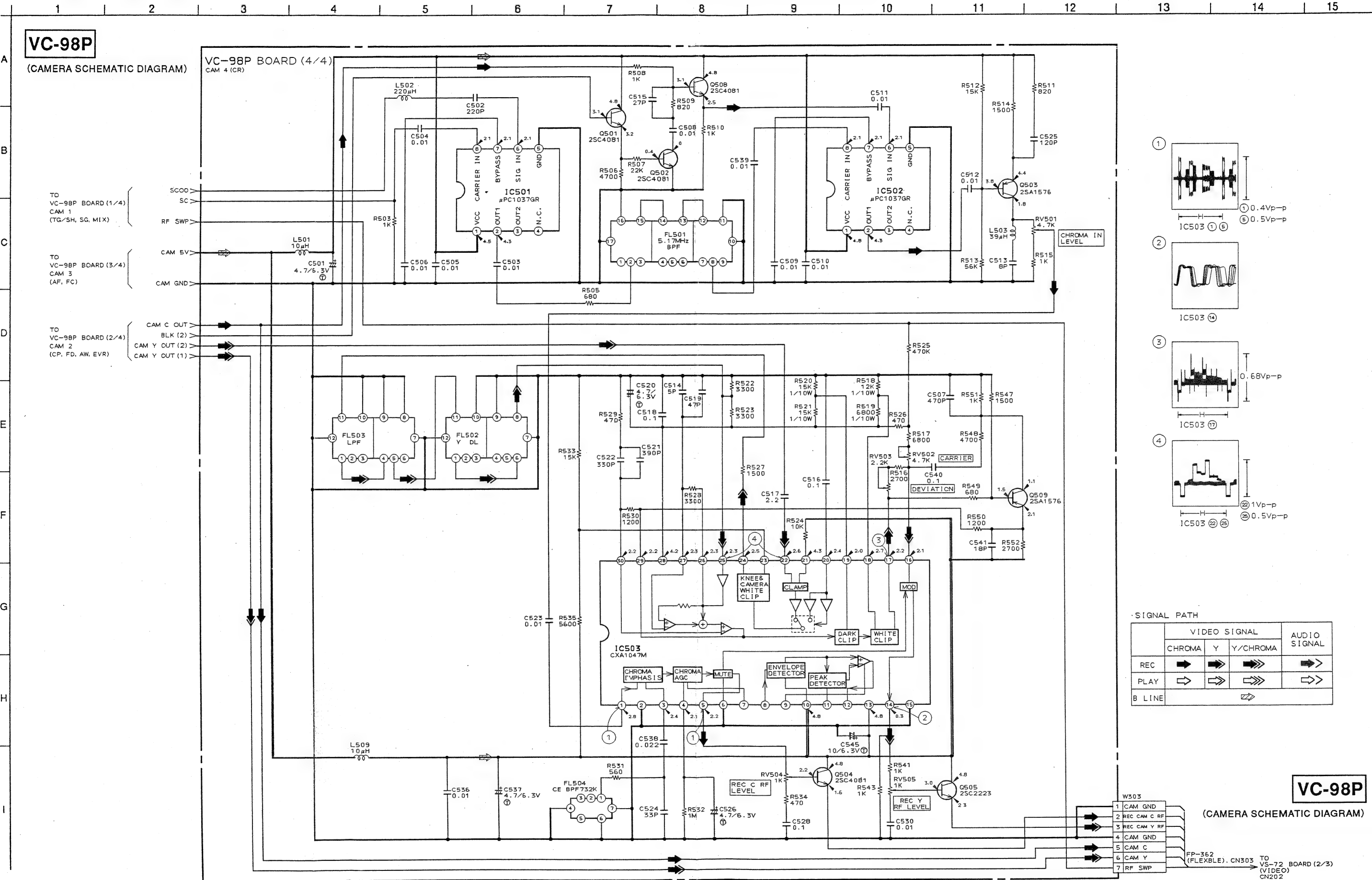
(CONDUCTOR SIDE)



VC-98P

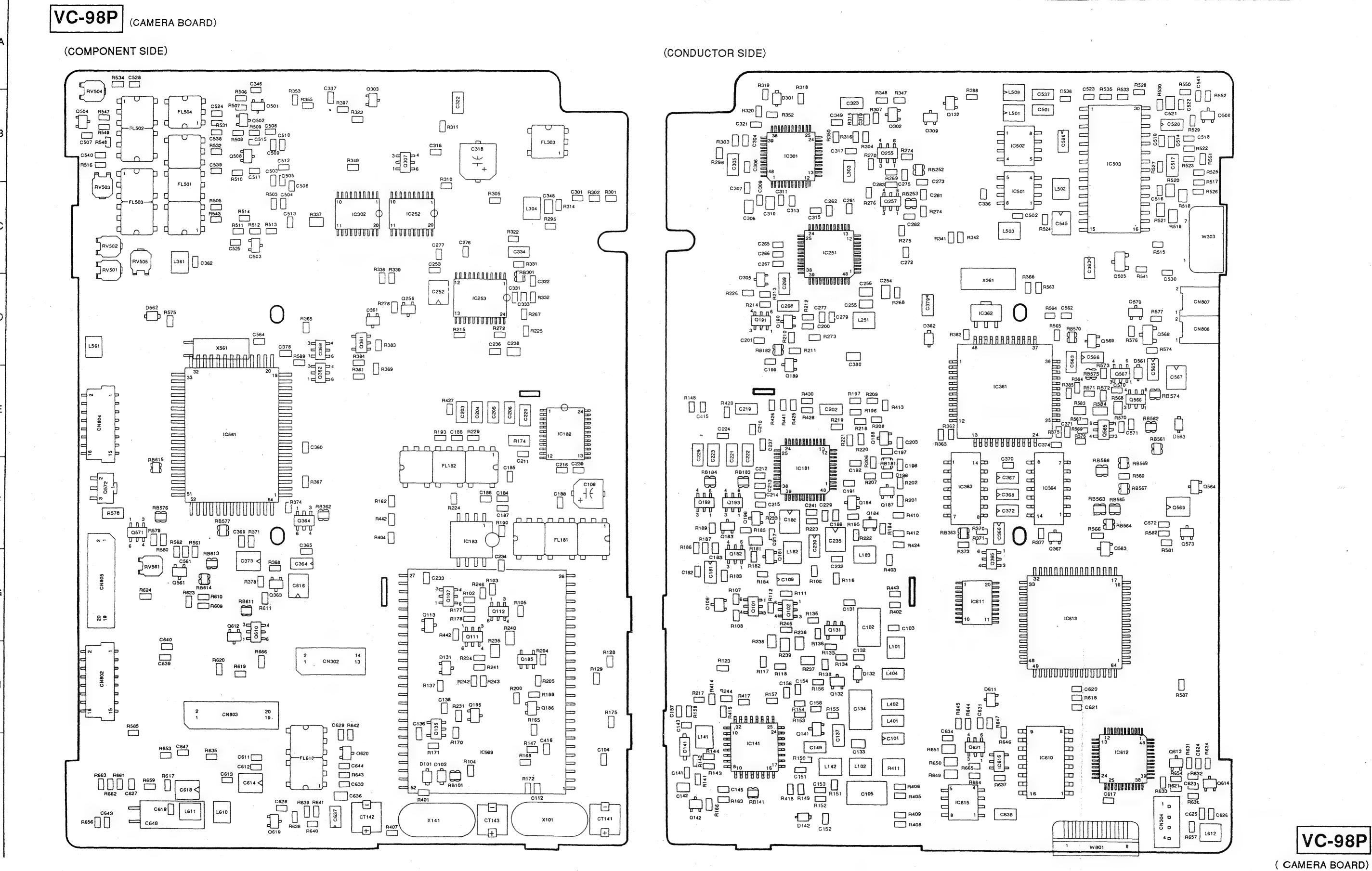
(CAMERA BOARD)

2-3-4. VC-98P BOARD (4/4)



VC-98P BOARD COMPONENT LOCATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----

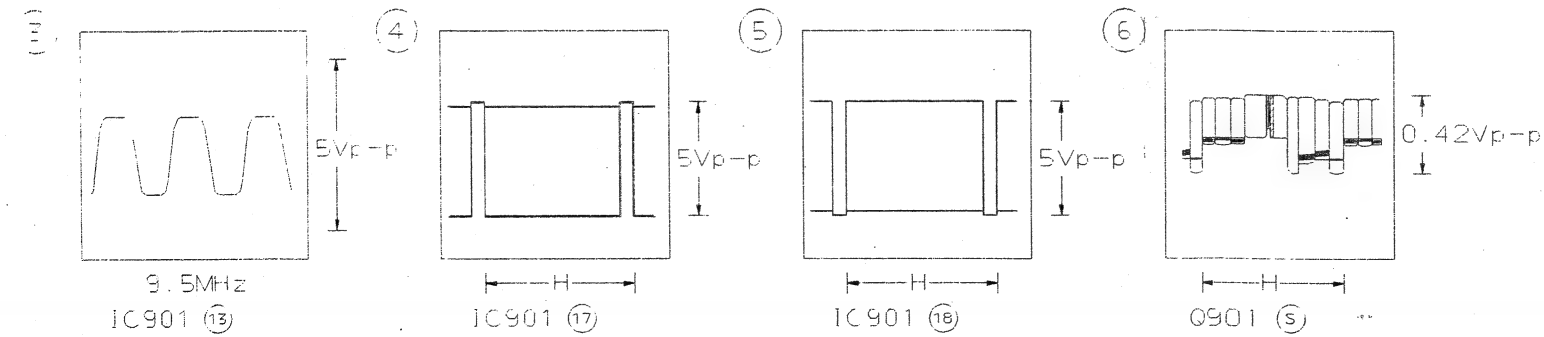
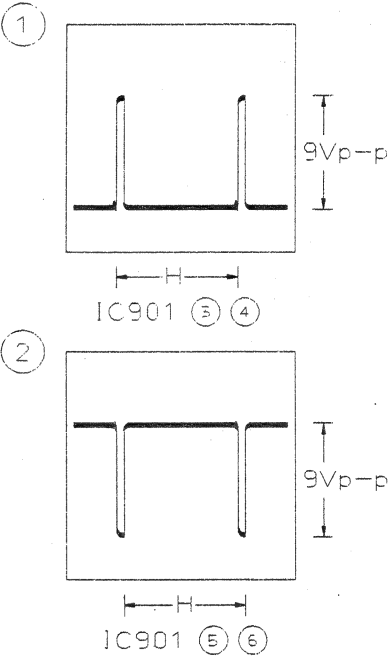
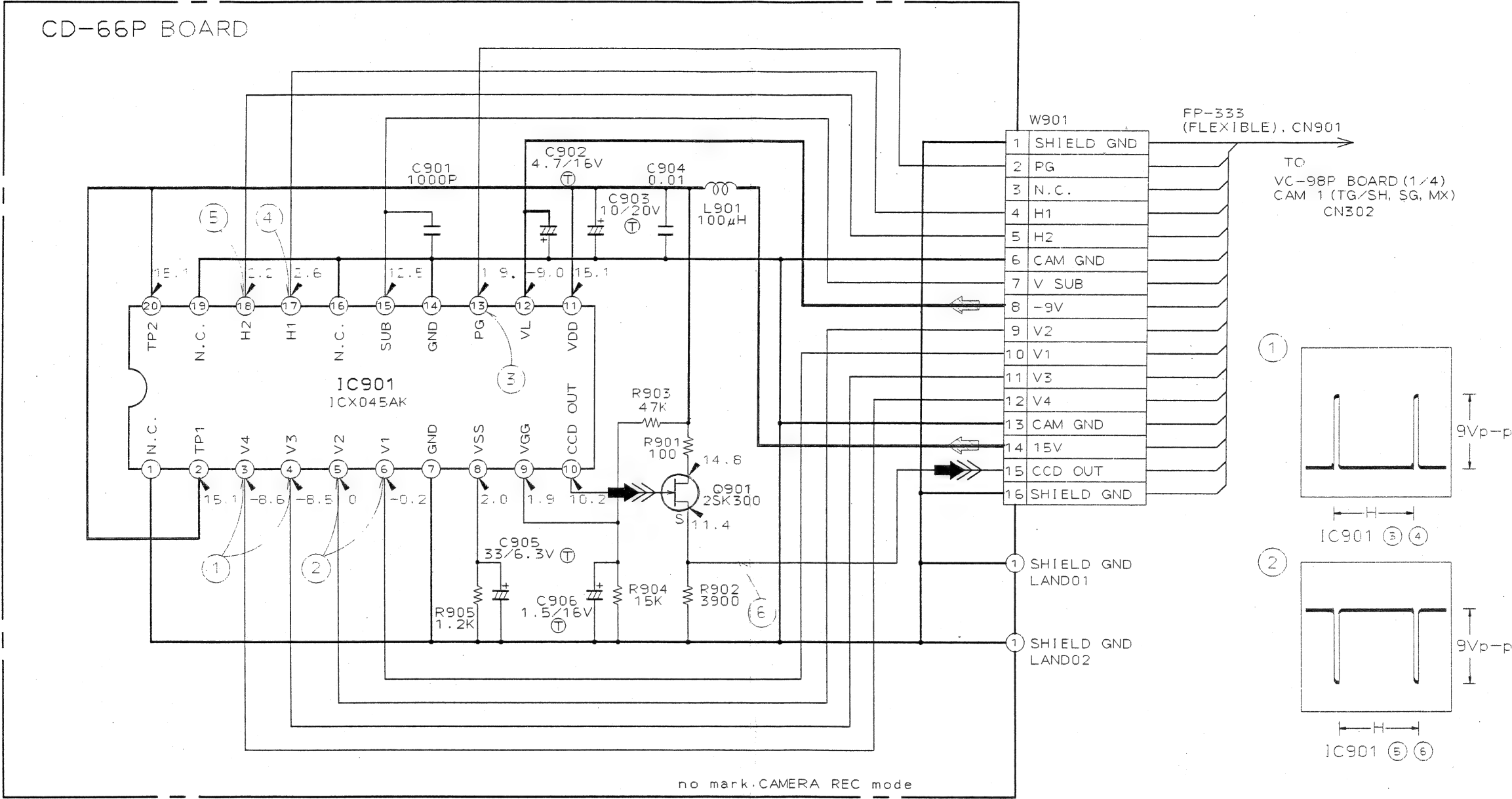


2-4. CD-66P BOARD

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

CD-66P (CCD IMAGER SCHEMATIC DIAGRAM)

A
B
C
D
E
F
G
H
I



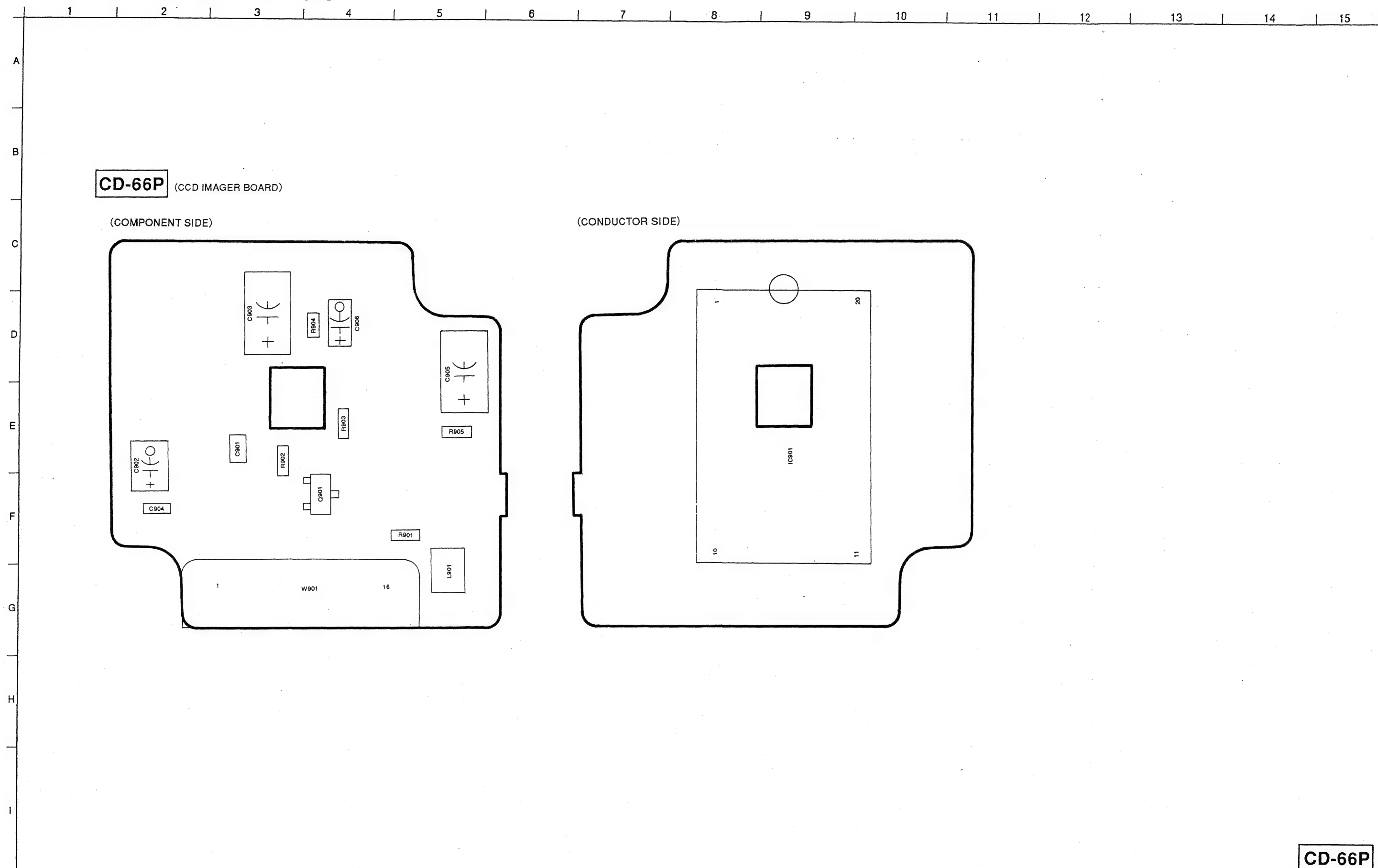
· SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡➡	➡➡
PLAY	➡	➡➡	➡➡➡	➡➡
B LINE			➡➡	

CD-66P

(CCD IMAGER SCHEMATIC DIAGRAM)

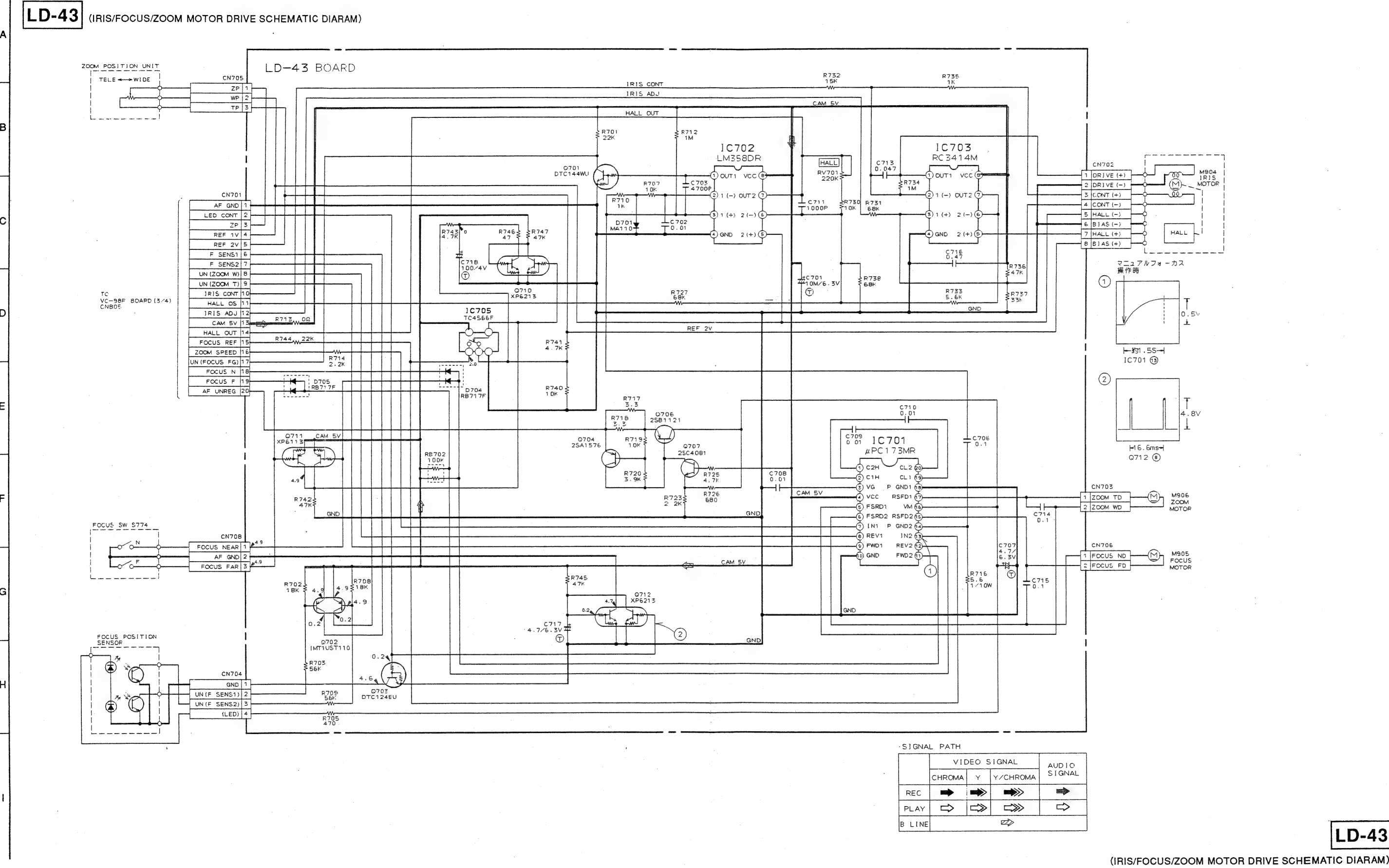
CD-66P BOARD COMPONENT LOCATIONS



CD-66P
(CCD IMAGER BOARD)

2-5. LD-43 BOARD

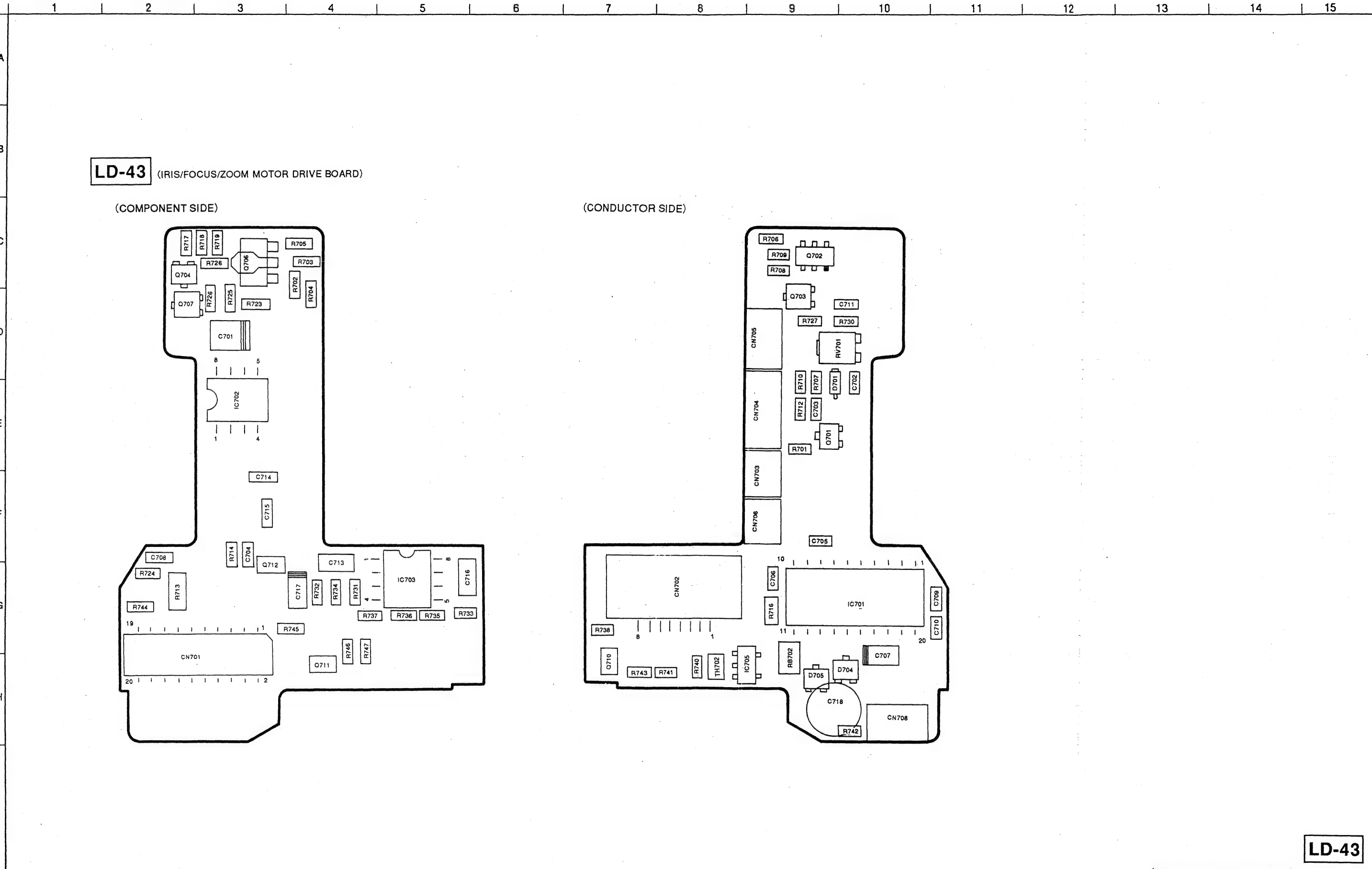
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15



LD-43

(IRIS/FOCUS/ZOOM MOTOR DRIVE SCHEMATIC DIARAM)

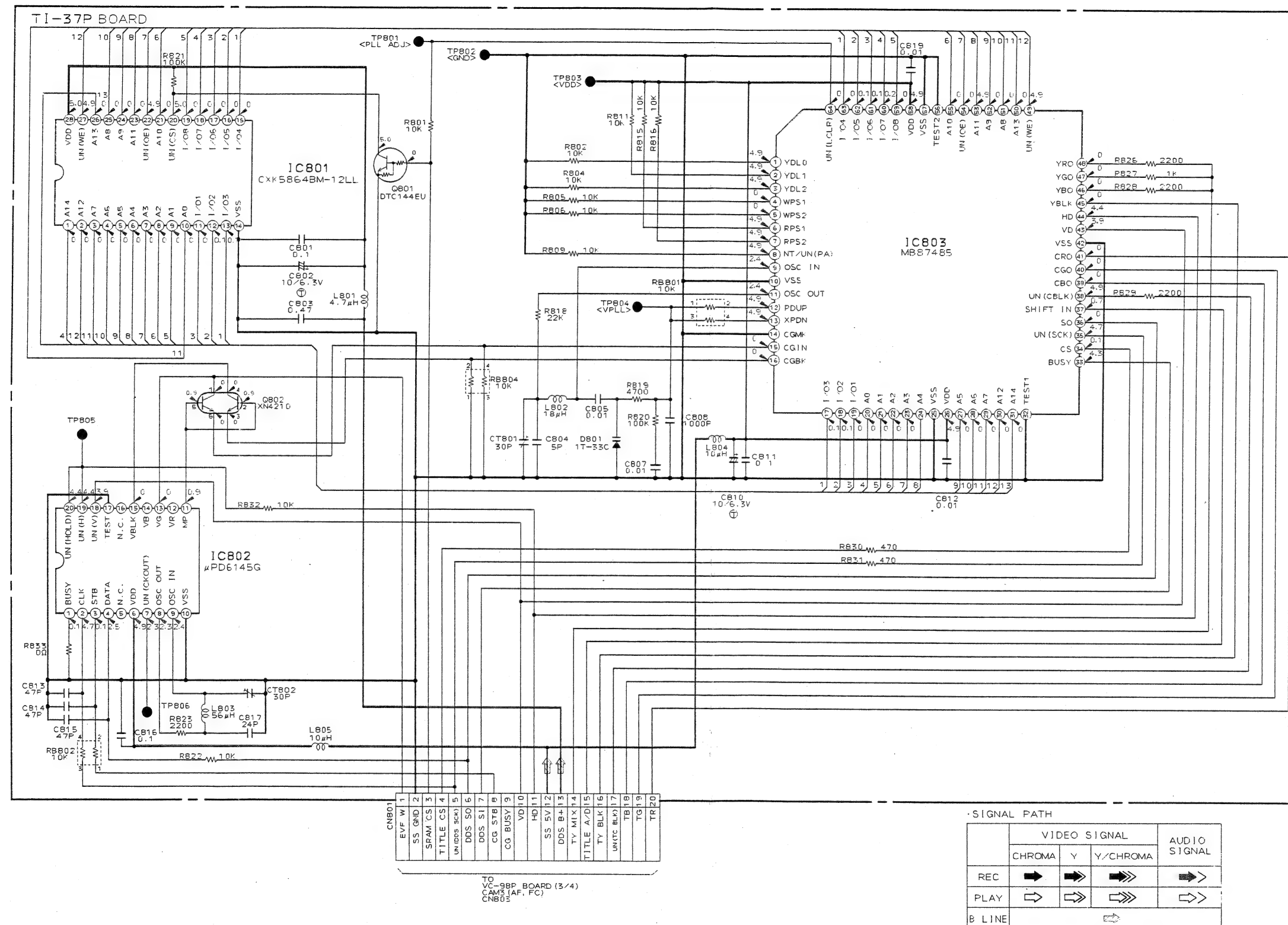
LD-43 BOARD COMPONENT LOCATIONS



LD-43

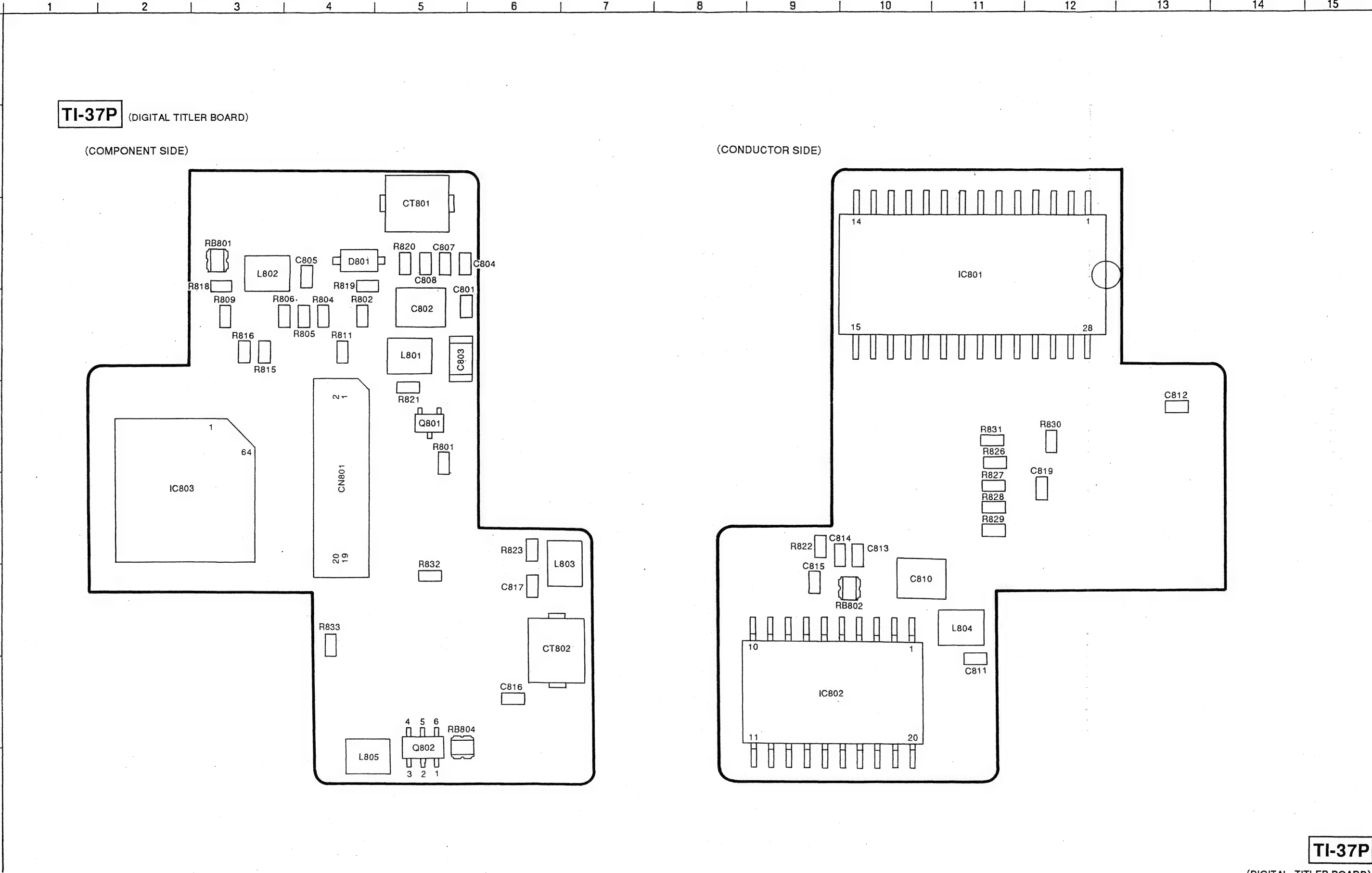
(IRIS/FOCUS/ZOOM MOTOR DRIVE BOARD)

2-6. TI-37P BOARD

TI-37P (DIGITAL TITLER SCHEMATIC DIAGRAM)

TI-37P

(DIGITAL TITLER SCHEMATIC DIAGRAM)

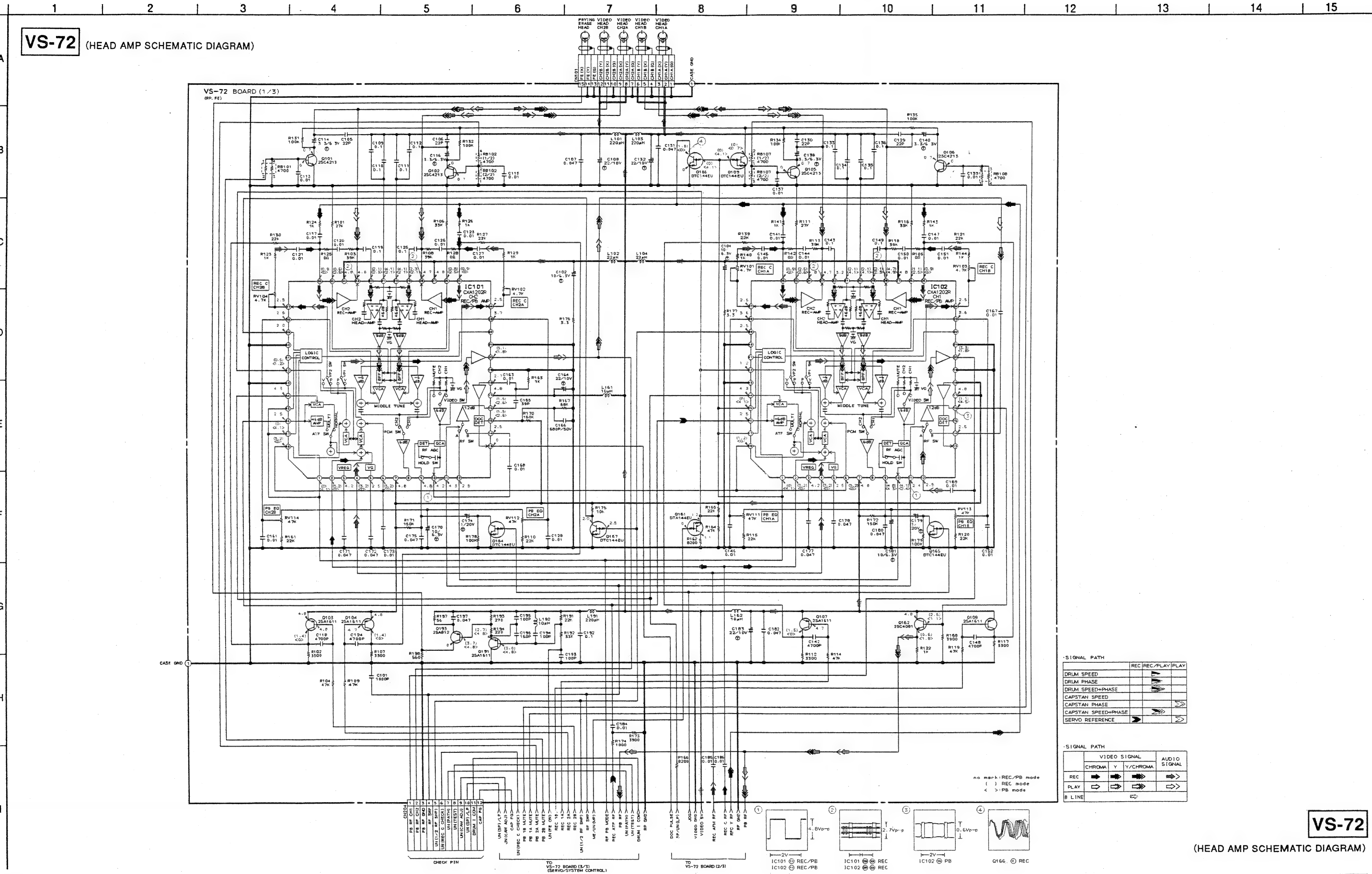
TI-37P BOARD COMPONENT LOCATIONS



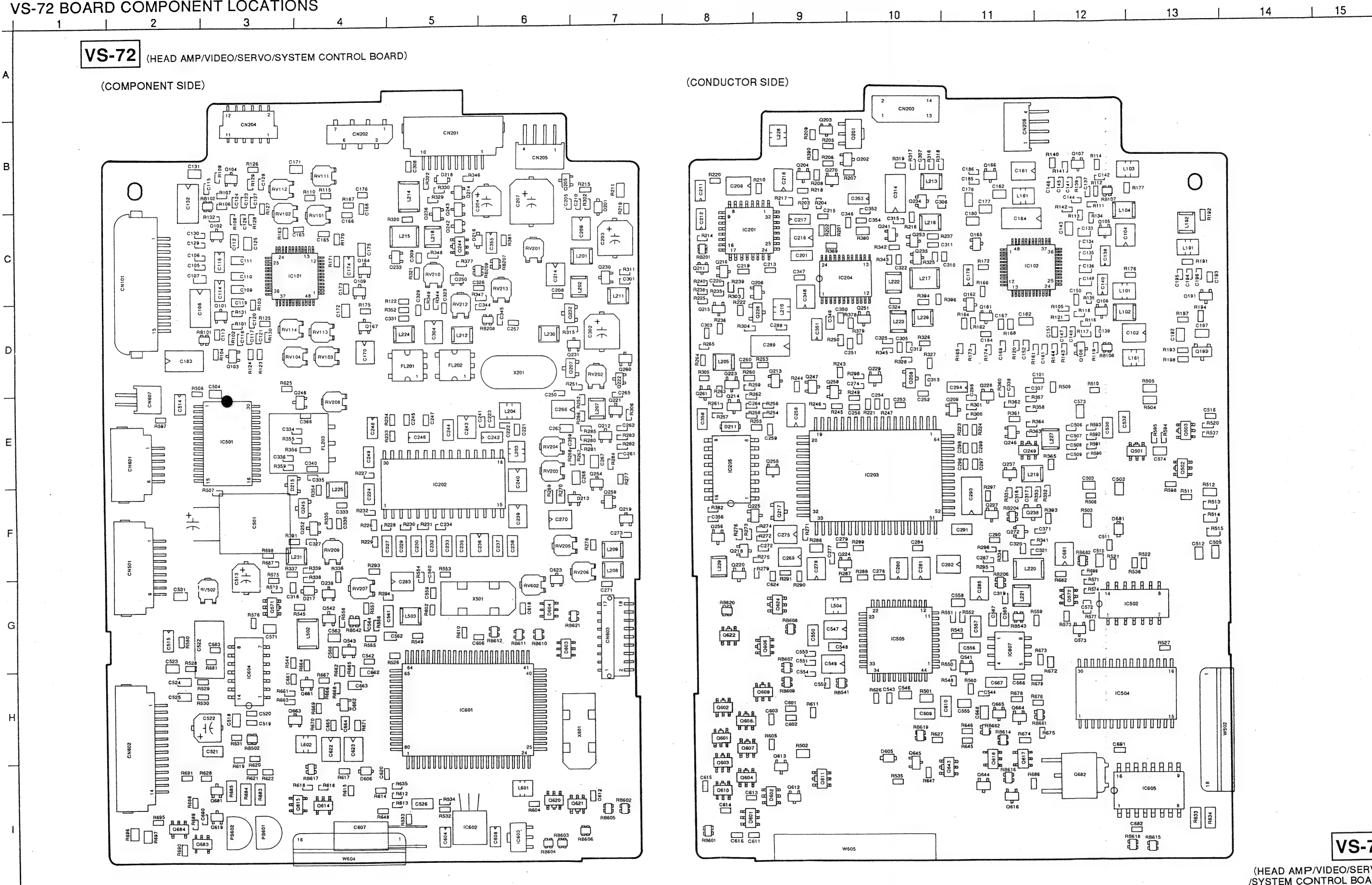
TI-37P
(DIGITAL TITLER BOARD)

2-7. VS-72 BOARD

2-7-1. VS-72 BOARD (1/3)

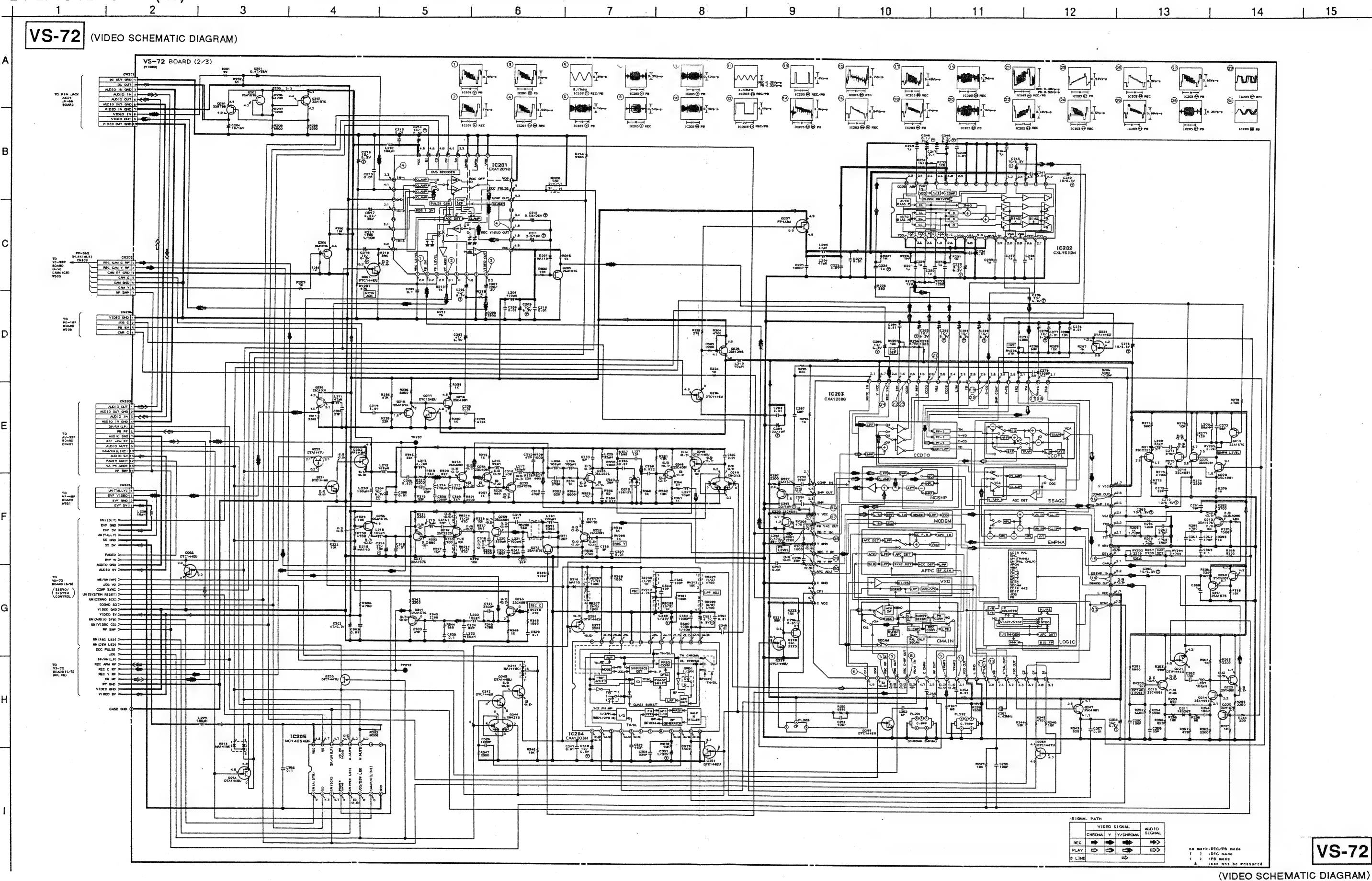


VS-72 BOARD COMPONENT LOCATIONS



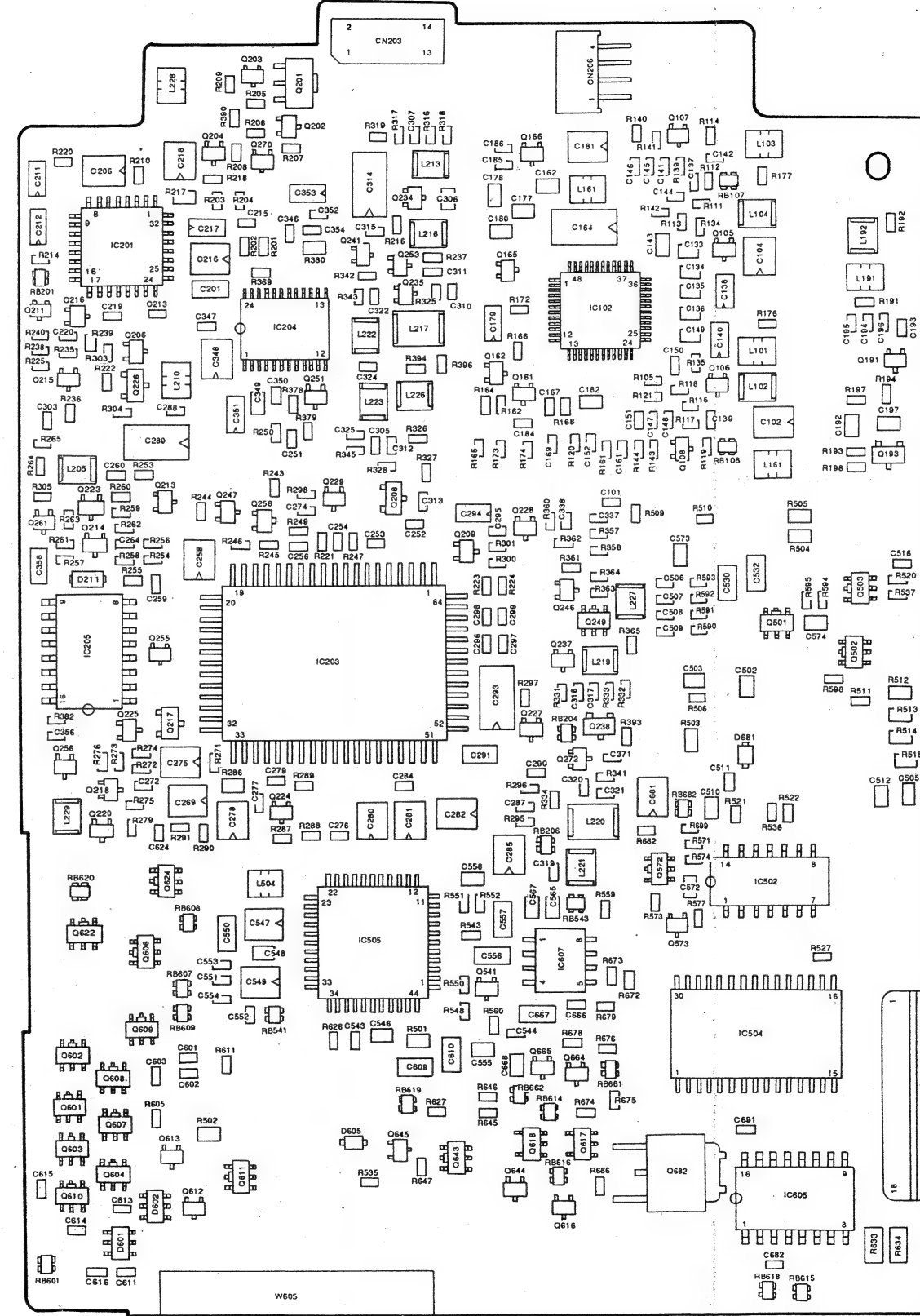
2 Schematic Diagrams

2-7-2. VS-72 BOARD (2/3)



VS-72 (HEAD AMP/VIDEO/SERVO/SYSTEM CONTROL BOARD)

(CONDUCTOR SIDE)

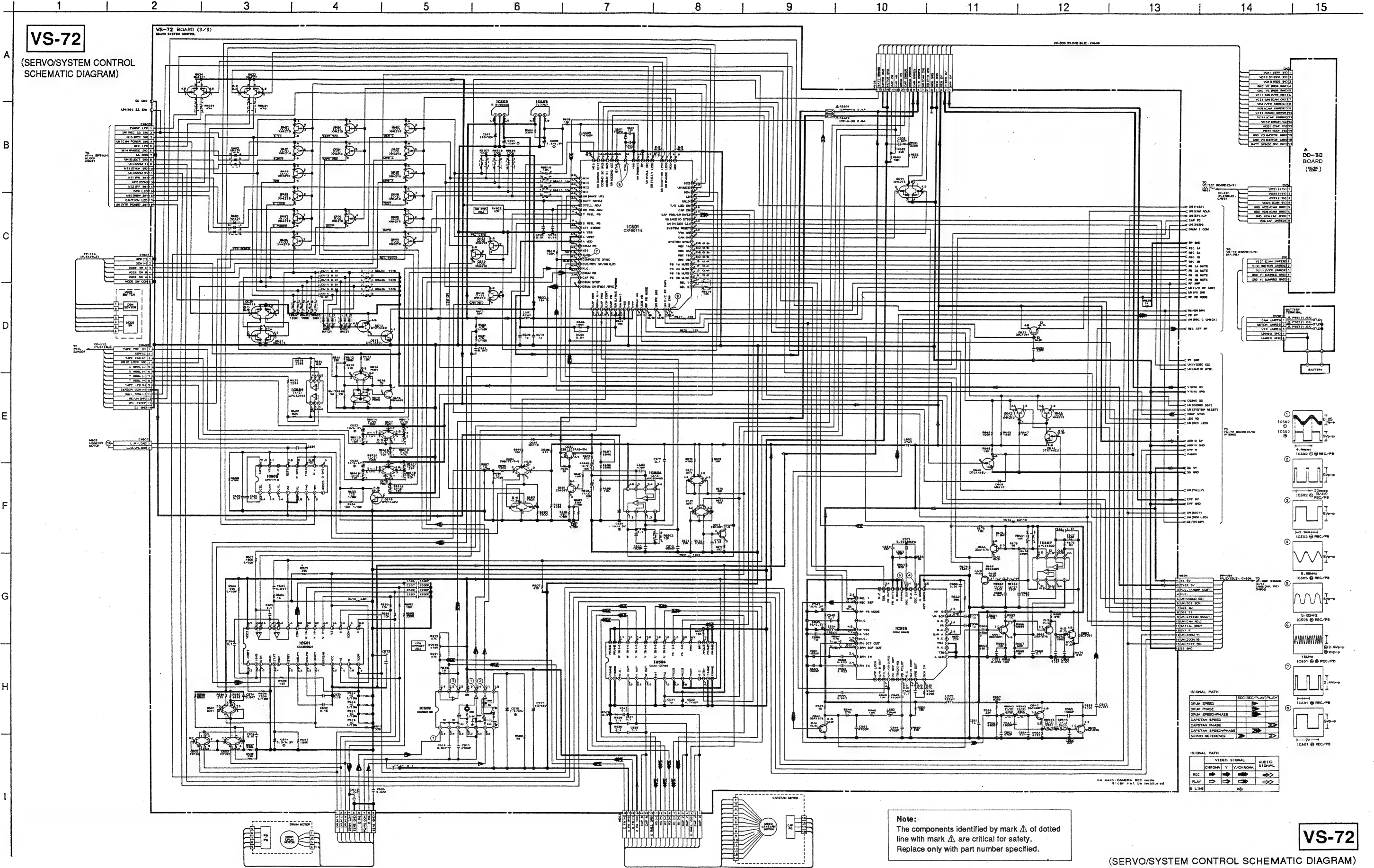


VS-72

(HEAD AMP/VIDEO/SERVO
/SYSTEM CONTROL BOARD)

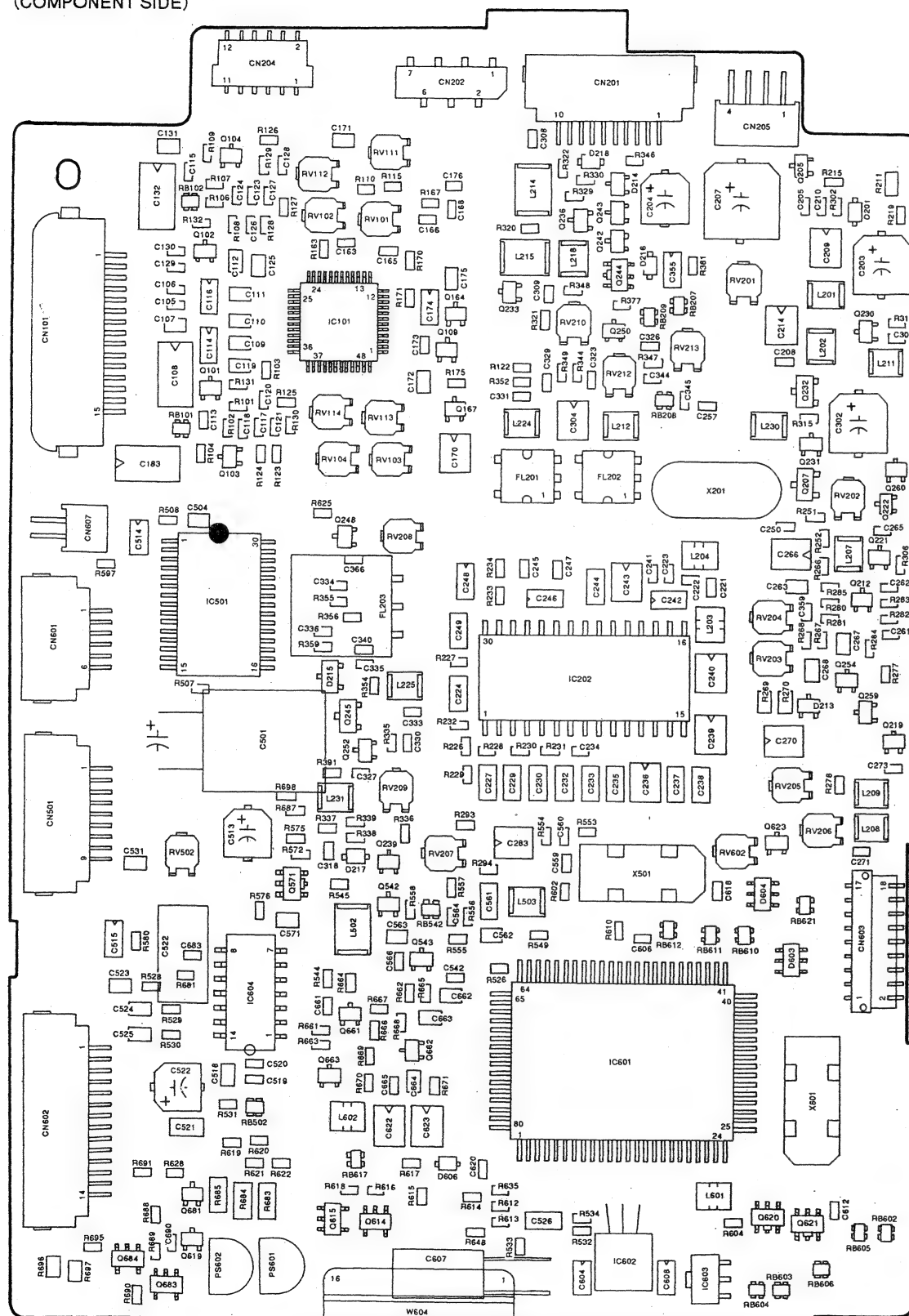
2 Schematic Diagrams

2-7-3. VS-72 BOARD (3/3)

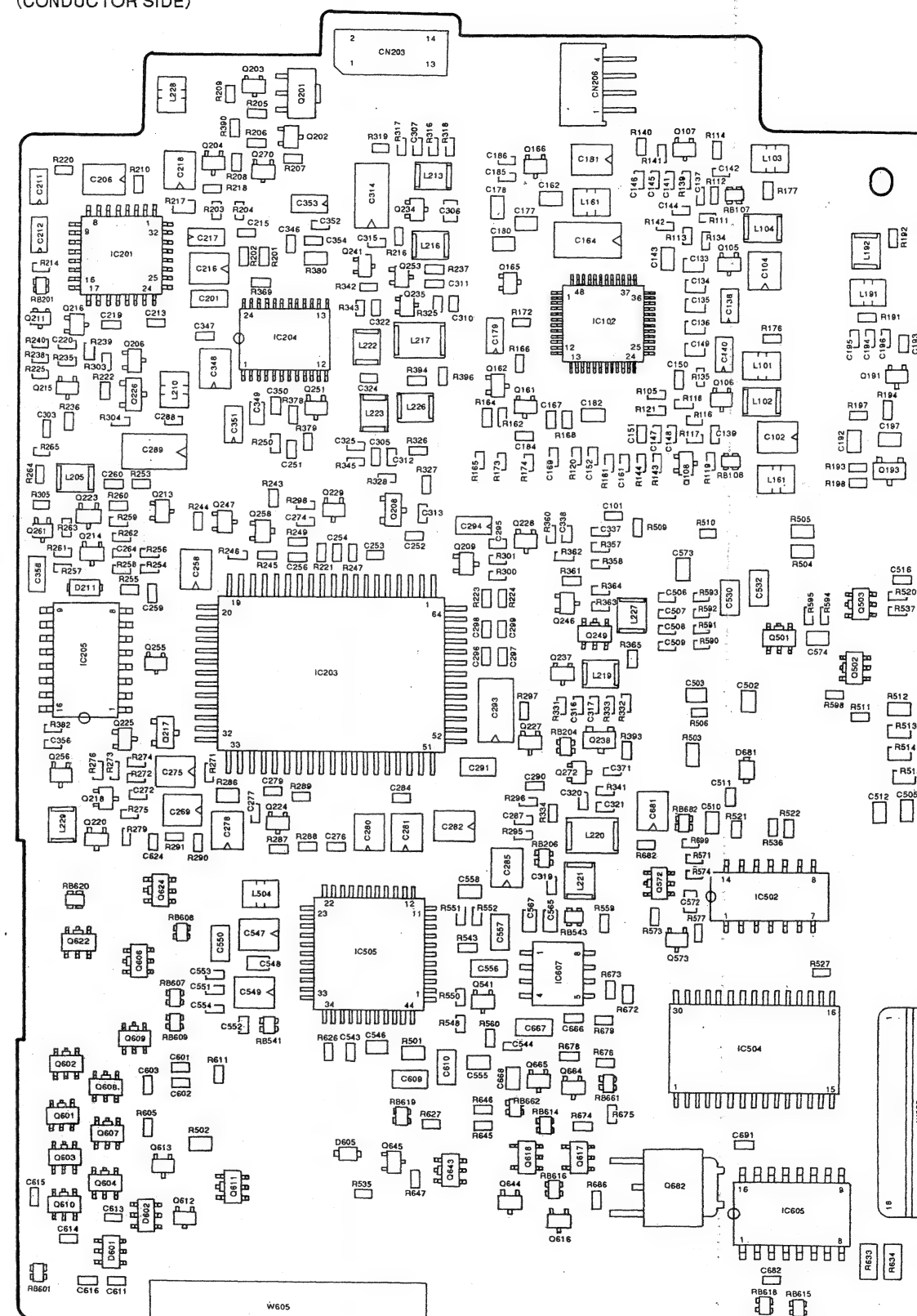


VS-72 (HEAD AMP/VIDEO/SERVO/SYSTEM CONTROL BOARD)

(COMPONENT SIDE)



(CONDUCTOR SIDE)

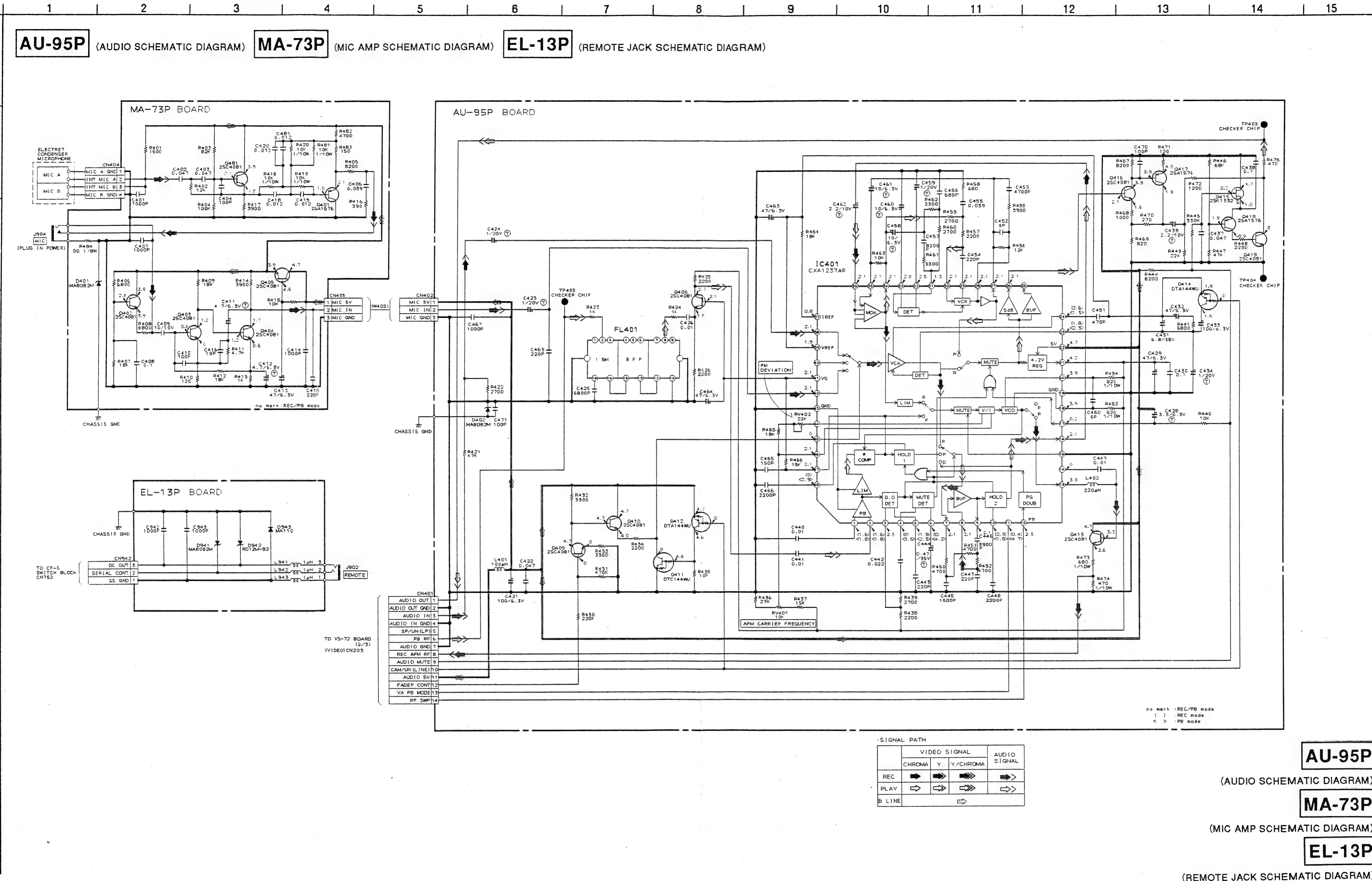


VS-72

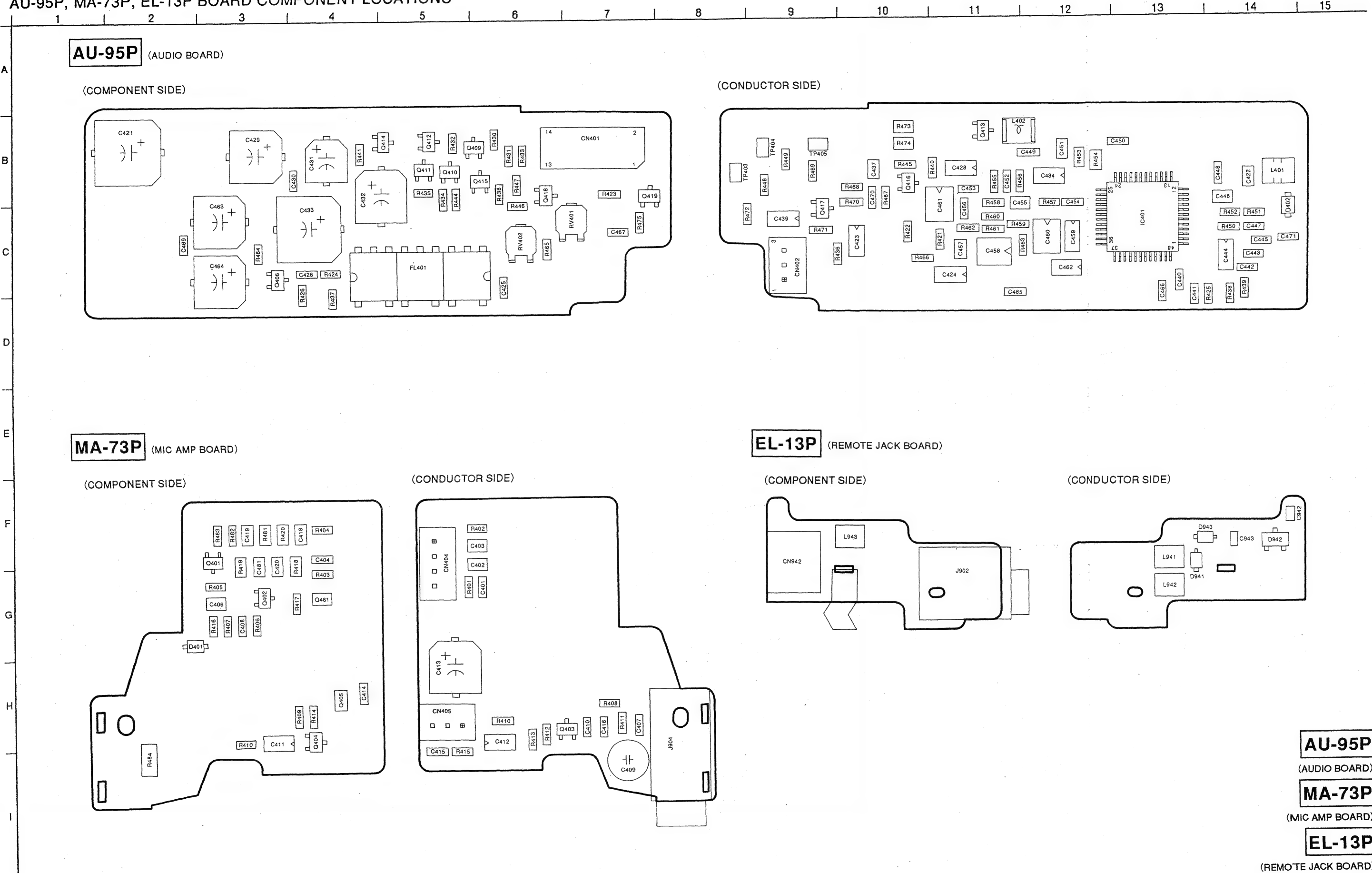
(HEAD AMP/VIDEO/SERVO
/SYSTEM CONTROL BOARD)

2 Schematic Diagrams

2-8. AU-95P, MA-73P, EL-13P BOARDS



AU-95P, MA-73P, EL-13P BOARD COMPONENT LOCATIONS



2-9. CF-0, FK-0, JK-66, FP-115, SW-177/178 BOARDS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

- CF-0

(CAMERA FUNCTION SW SCHEMATIC DIAGRAM)
- FK-0

(VTR FUNCTION SW SCHEMATIC DIAGRAM)
- JK-66P

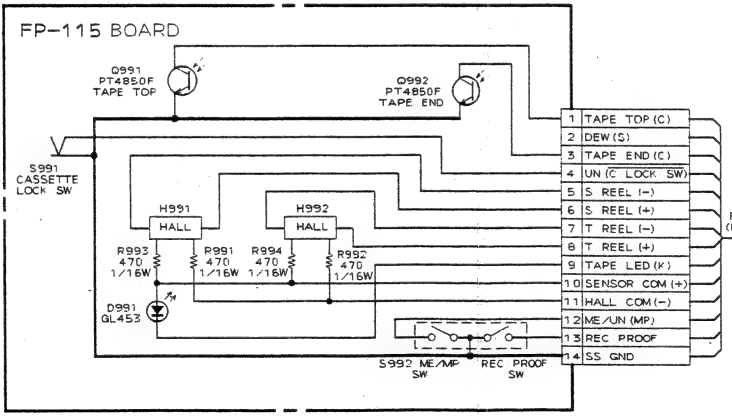
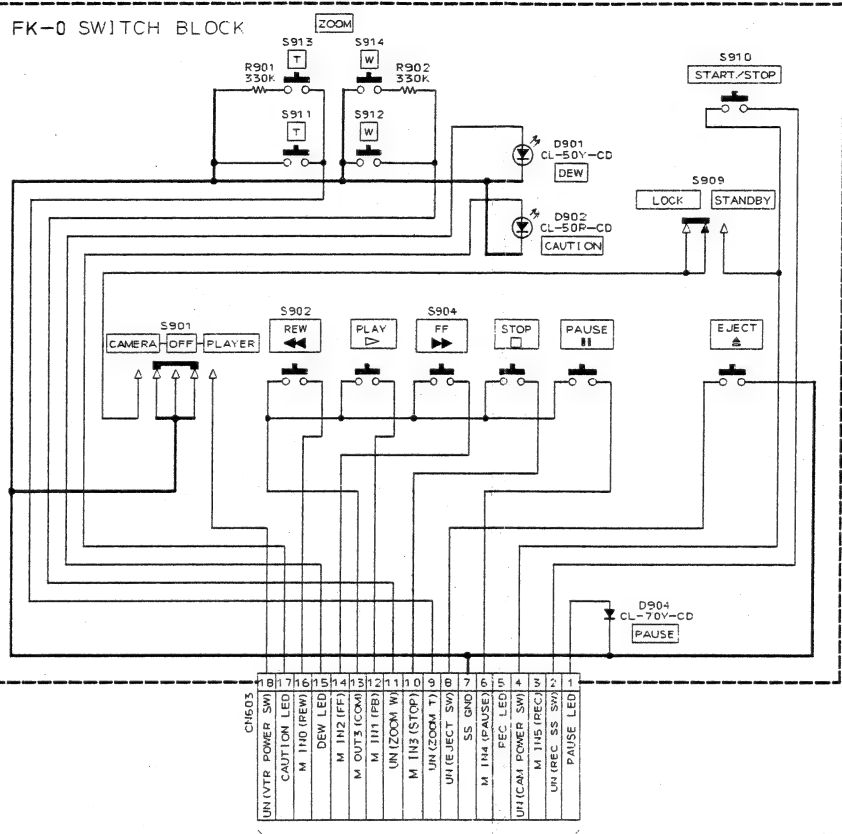
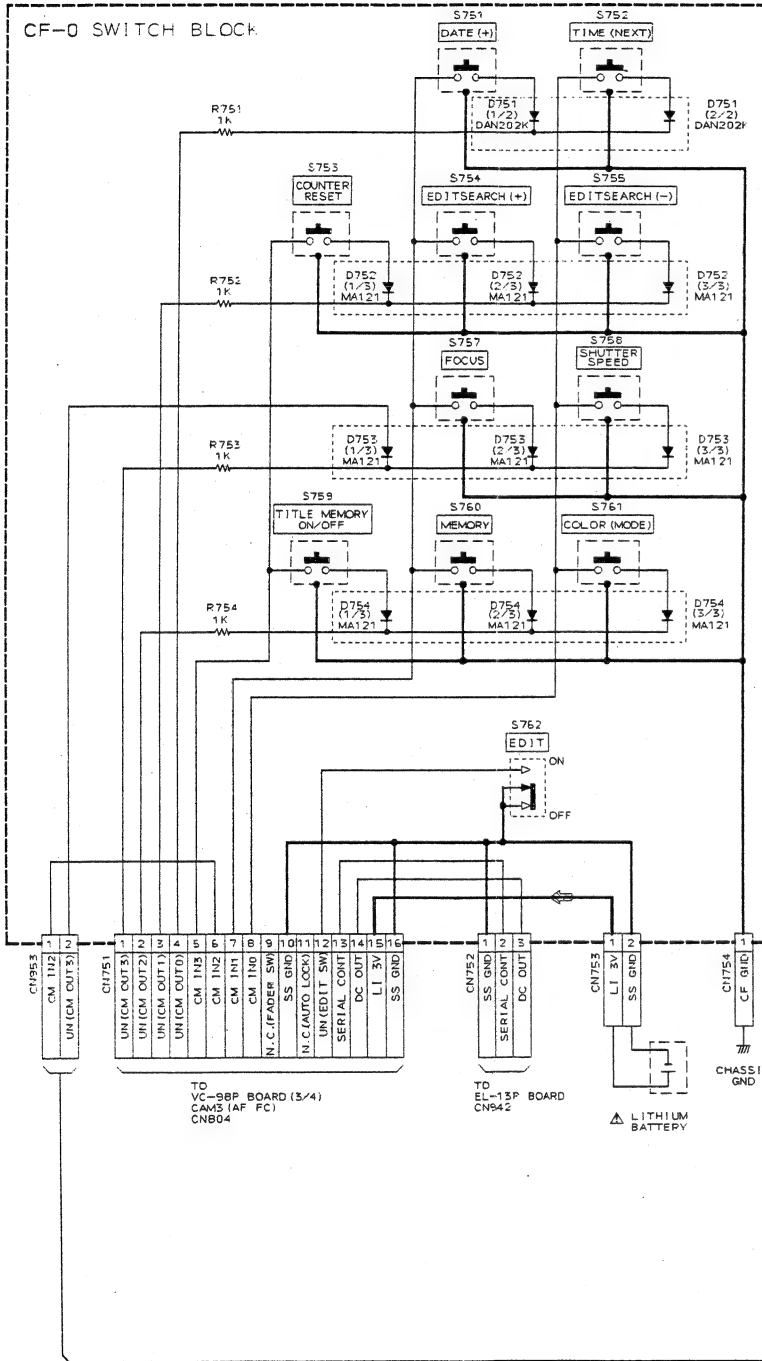
(VIDEO/AUDIO INPUT/OUTPUT SCHEMATIC DIAGRAM)
- FP-115

(TAPE TOP/END SENSOR/TAPE SELECT SCHEMATIC DIAGRAM)
- SW-177

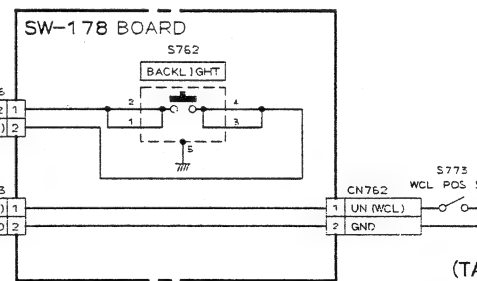
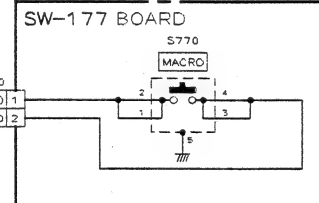
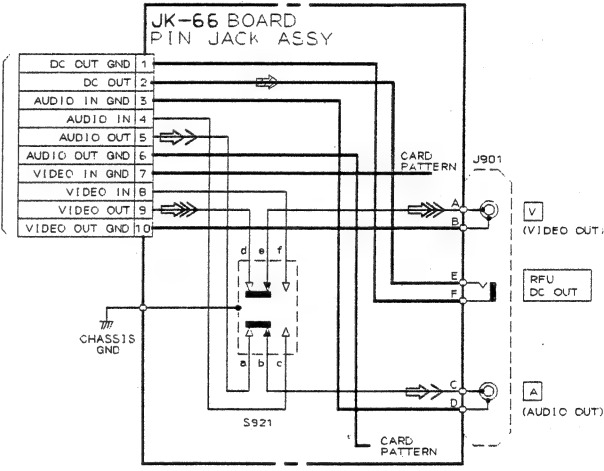
(MACRO SW SCHEMATIC DIAGRAM)
- SW-178

(BACKLIGHT SCHEMATIC DIAGRAM)

A
B
C
D
E
F
G
H
I



NOTE
Switch S921 is mounted on the JK-66 board, regardless of the destinations. For AEP/UK model, however, the output cover is provided that won't be attached at the input position.



	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	→	→	→	→
PLAY	→	→	→	→
B LINE	→	→	→	→

Note:
The components identified by mark Δ of dotted line with mark Δ are critical for safety.
Replace only with part number specified.

CF-0
(CAMERA FUNCTION SW SCHEMATIC DIAGRAM)

FK-0
(VTR FUNCTION SW SCHEMATIC DIAGRAM)

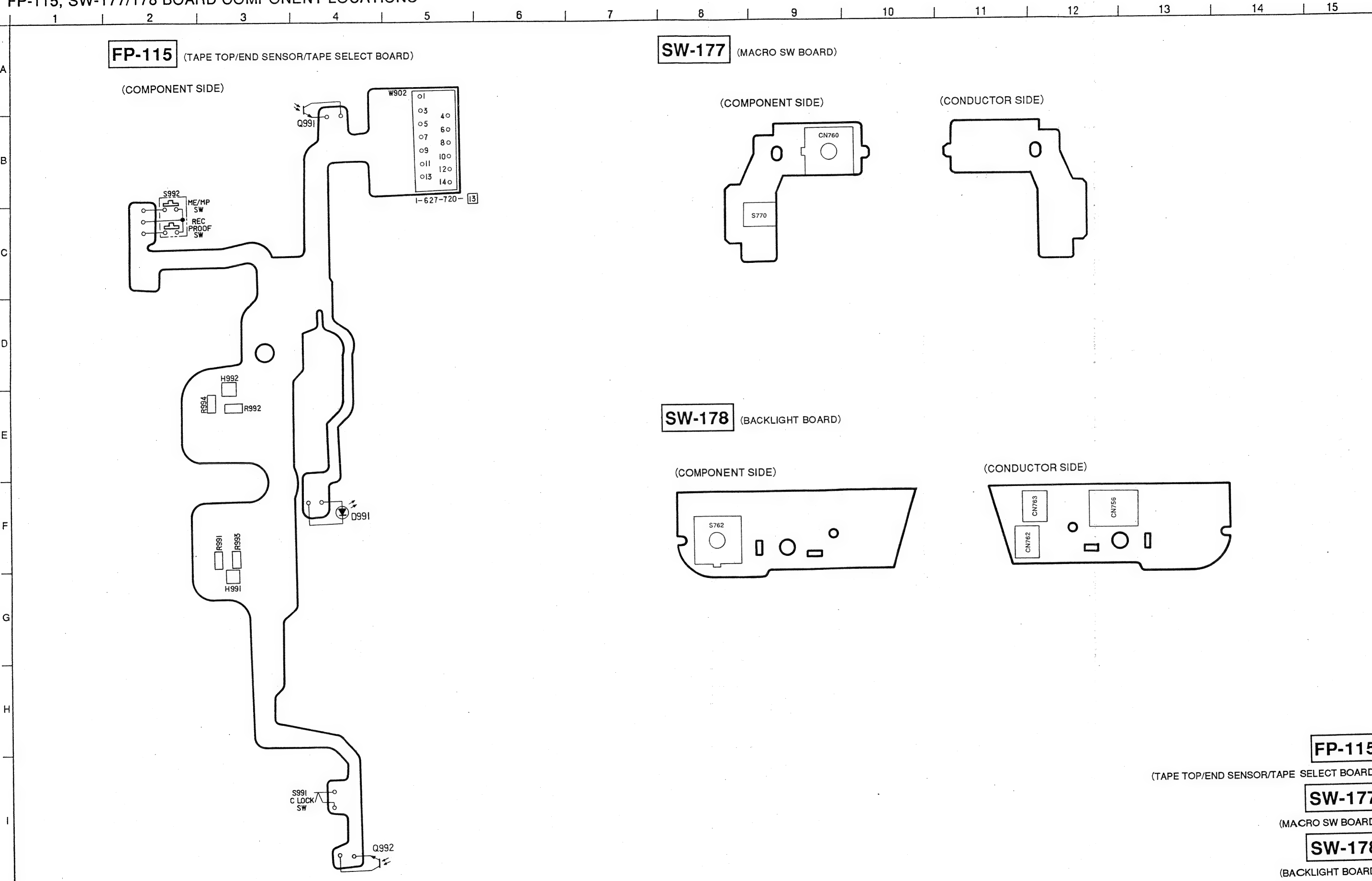
JK-66P
(VIDEO/AUDIO INPUT/OUTPUT SCHEMATIC DIAGRAM)

FP-115
(TAPE TOP/END SENSOR/TAPE SELECT SCHEMATIC DIAGRAM)

SW-177
(MACRO SW SCHEMATIC DIAGRAM)

SW-178
(BACKLIGHT SCHEMATIC DIAGRAM)

FP-115, SW-177/178 BOARD COMPONENT LOCATIONS

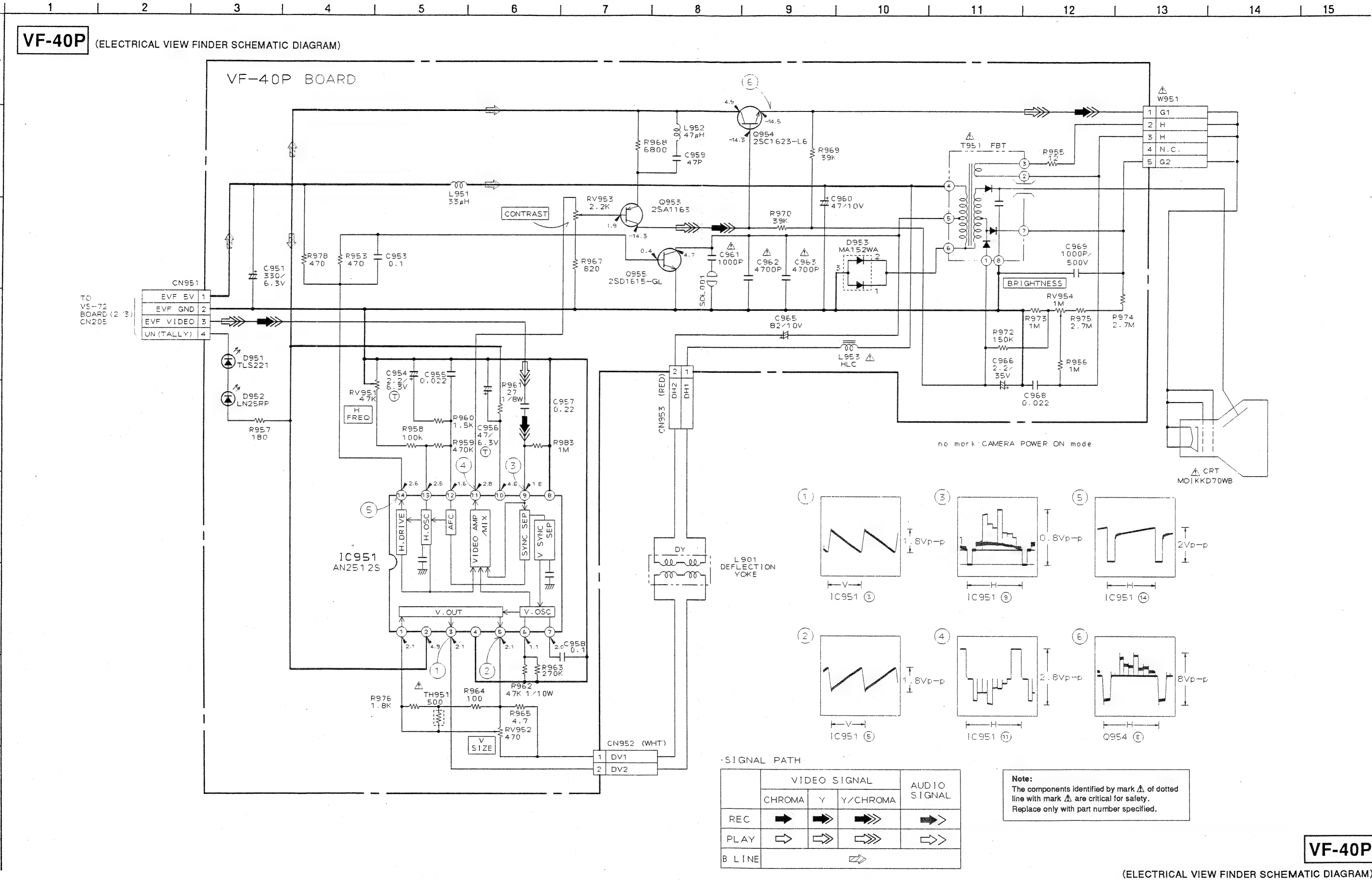


FP-115
(TAPE TOP/END SENSOR/TAPE SELECT BOARD)

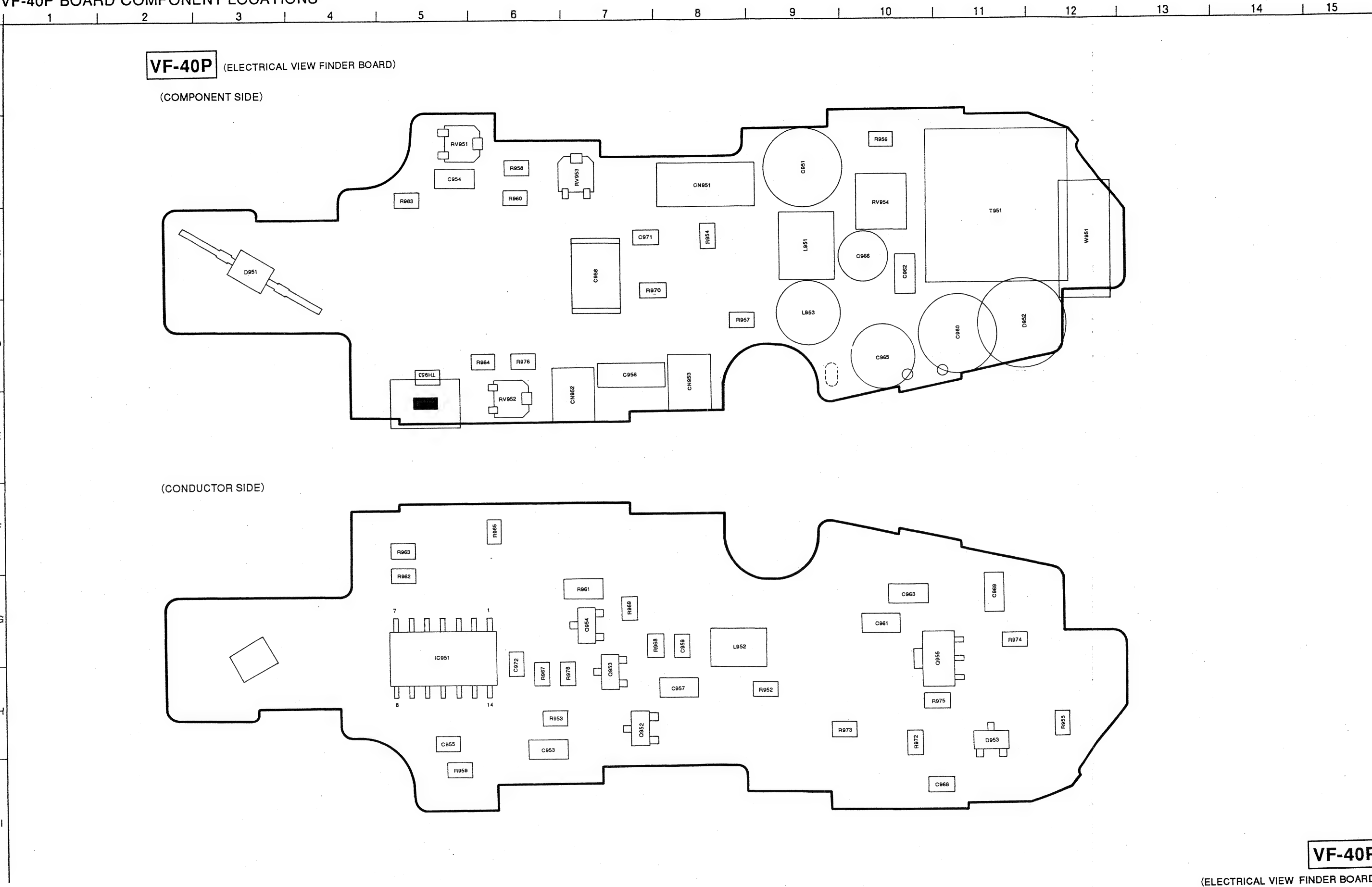
SW-177
(MACRO SW BOARD)

SW-178
(BACKLIGHT BOARD)

2-10. VF-40P BOARD

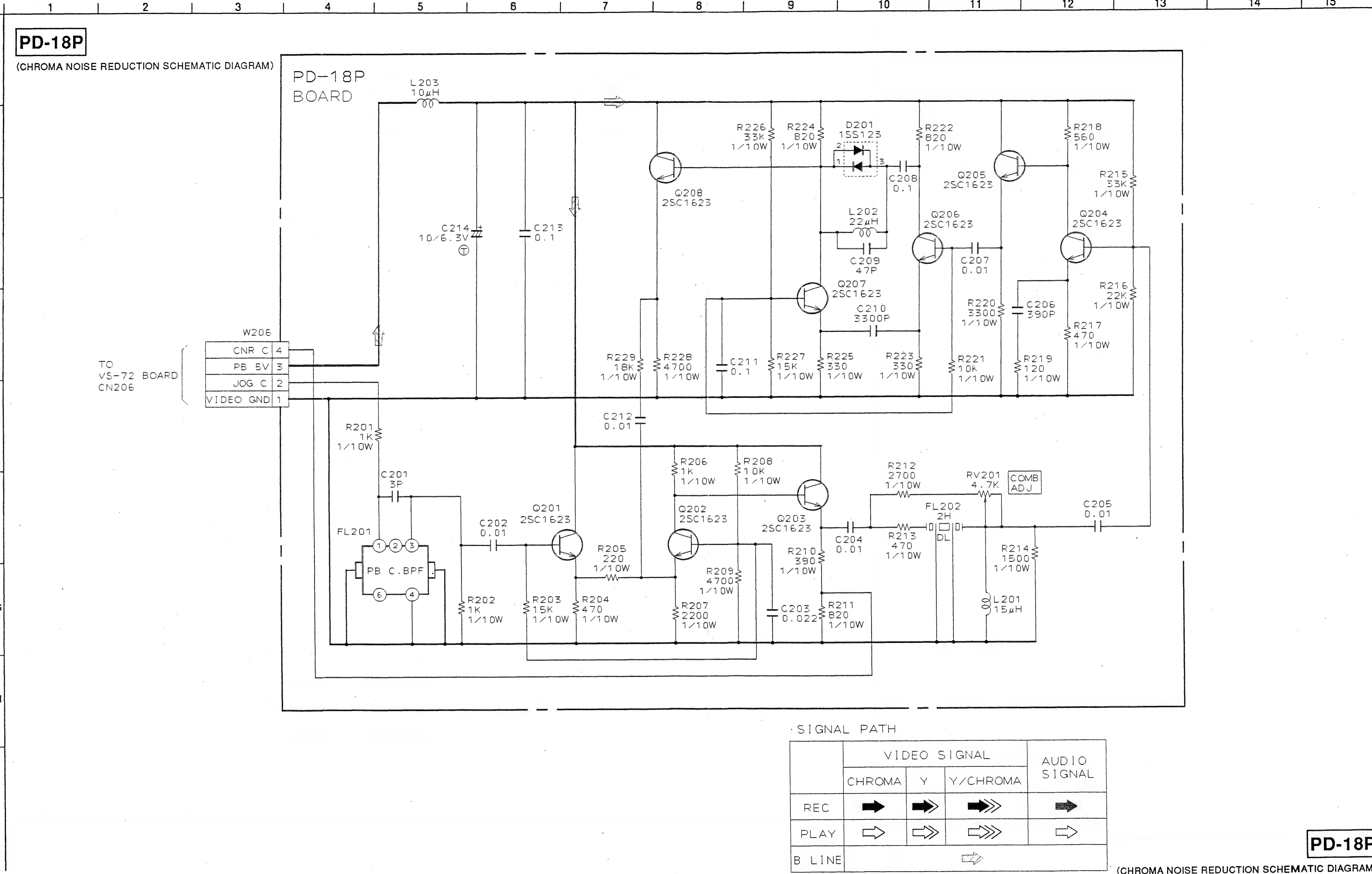


VF-40P BOARD COMPONENT LOCATIONS

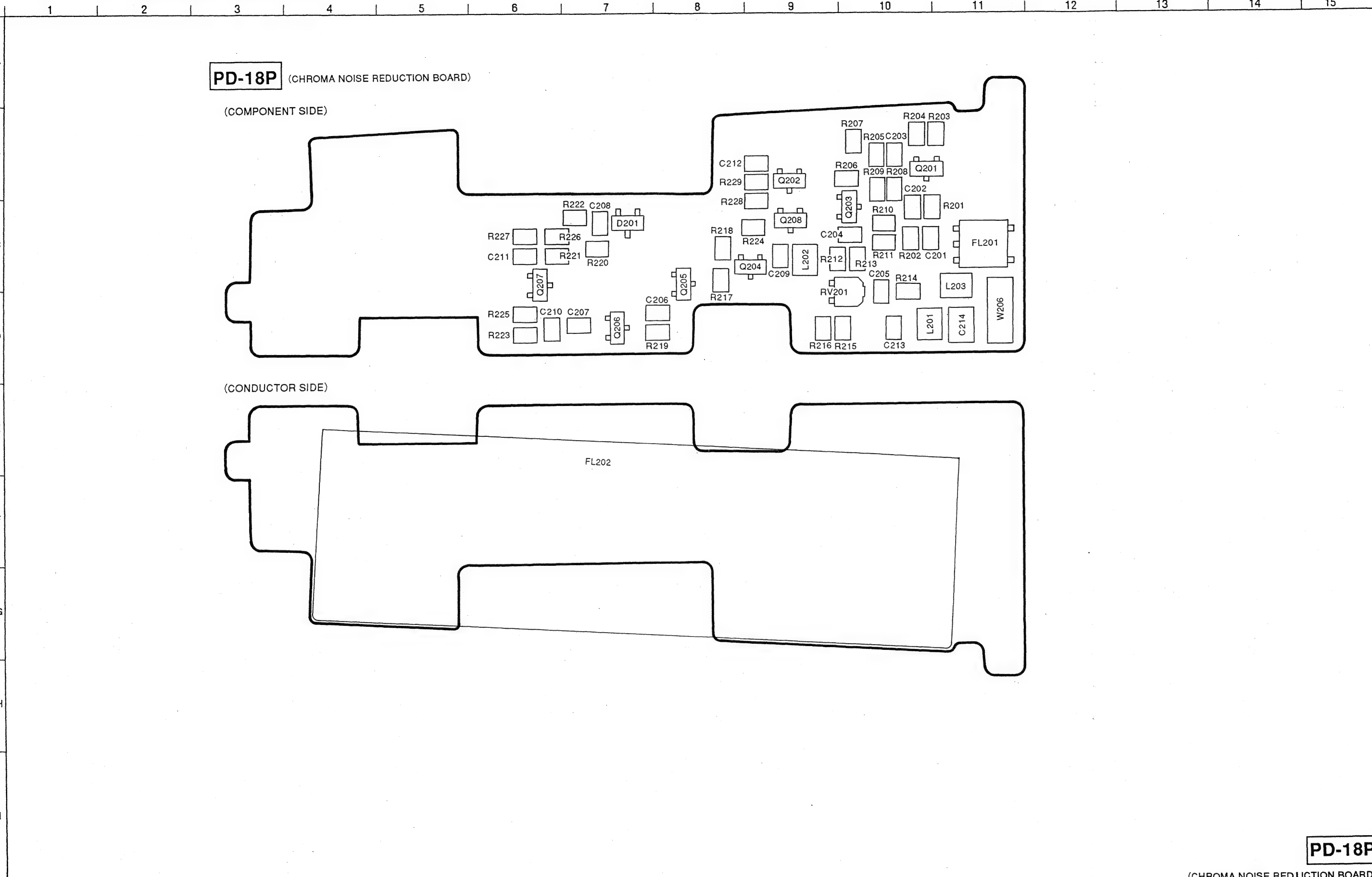


VF-40P
(ELECTRICAL VIEW FINDER BOARD)

2-11. PD-18P BOARD



PD-18P BOARD COMPONENT LOCATIONS

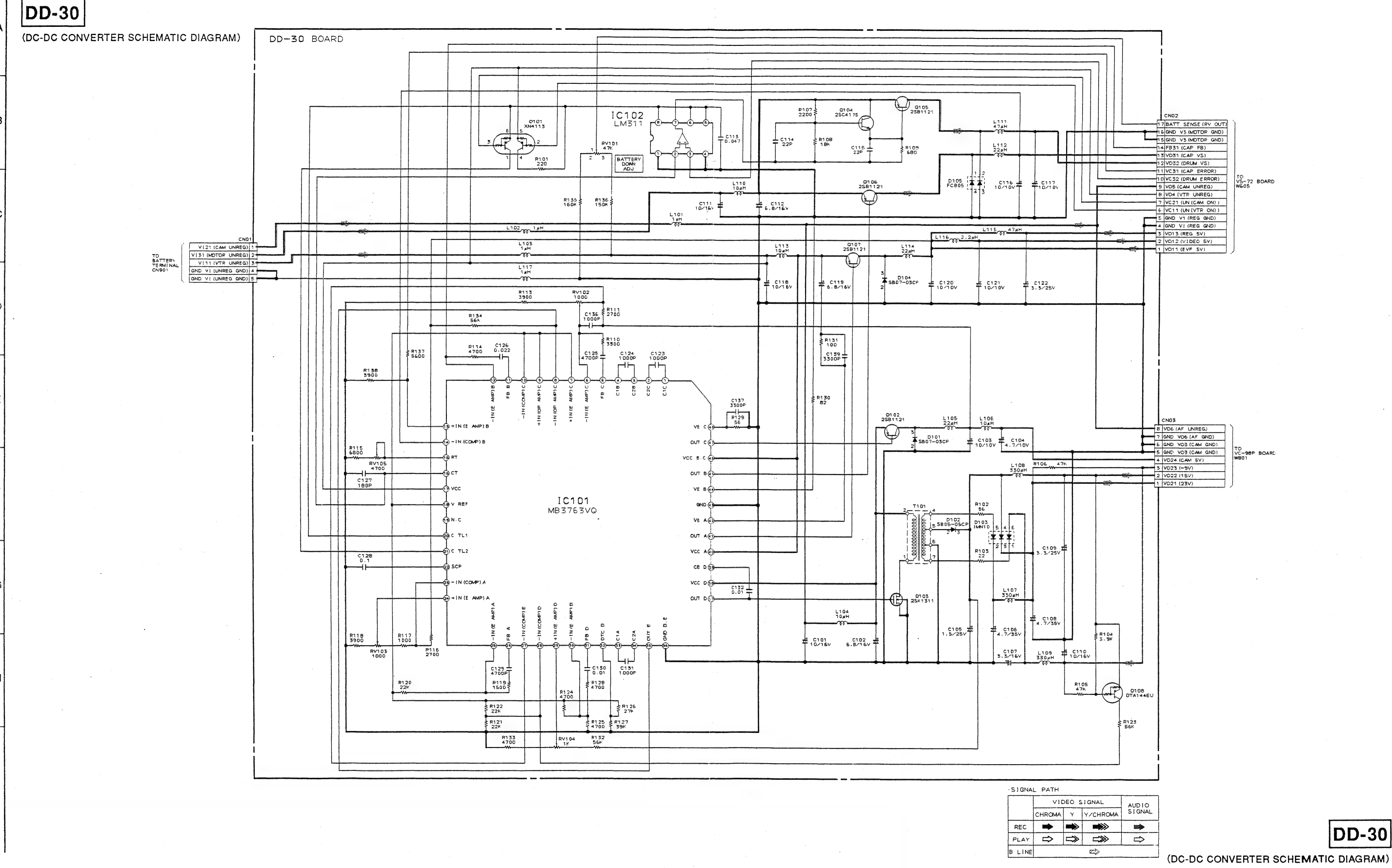


PD-18P

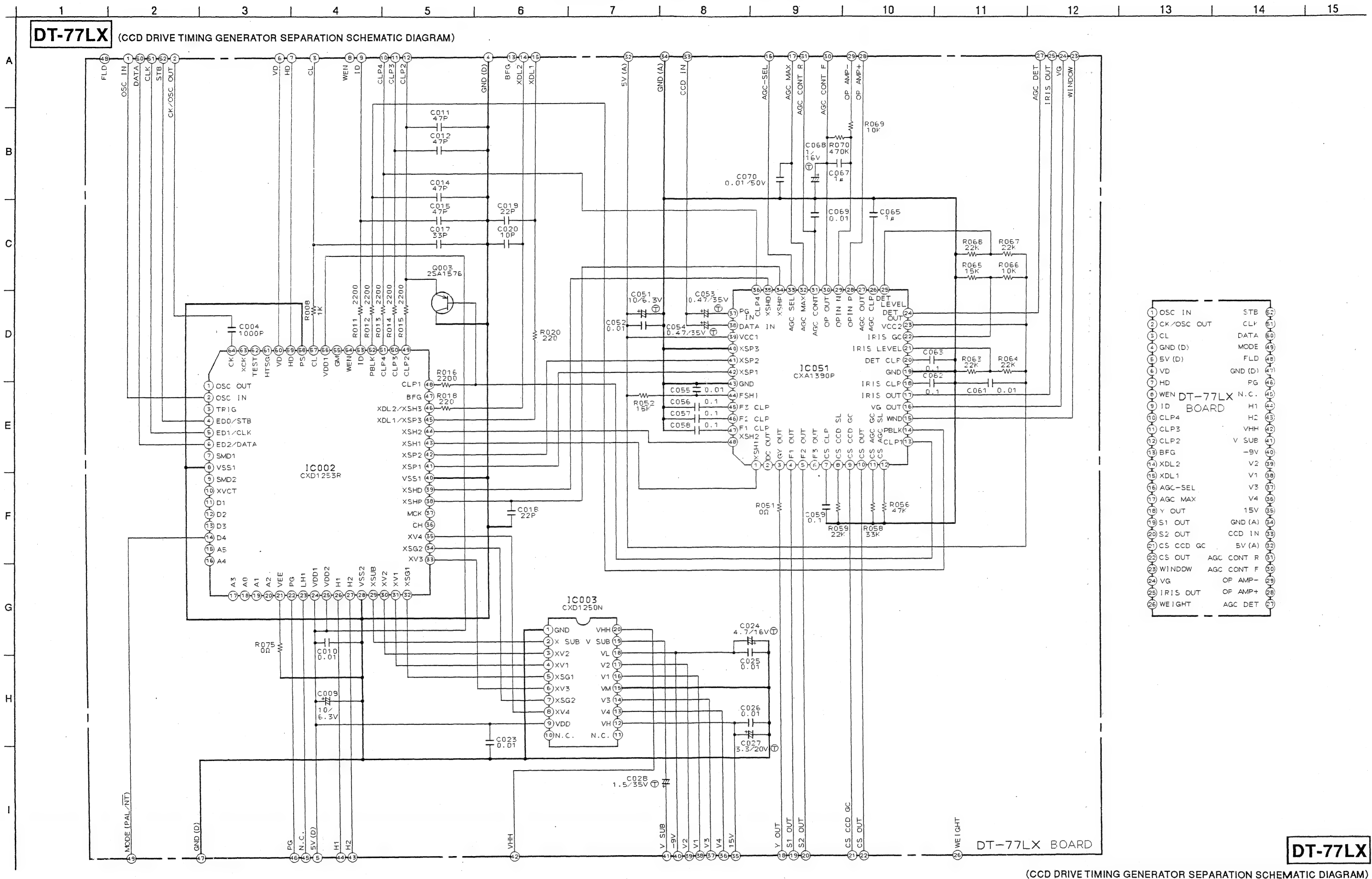
(CHROMA NOISE REDUCTION BOARD)

2-12. DD-30 BOARD

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----



2-13. DT-77LX BOARD



2-14. SEMICONDUCTORS

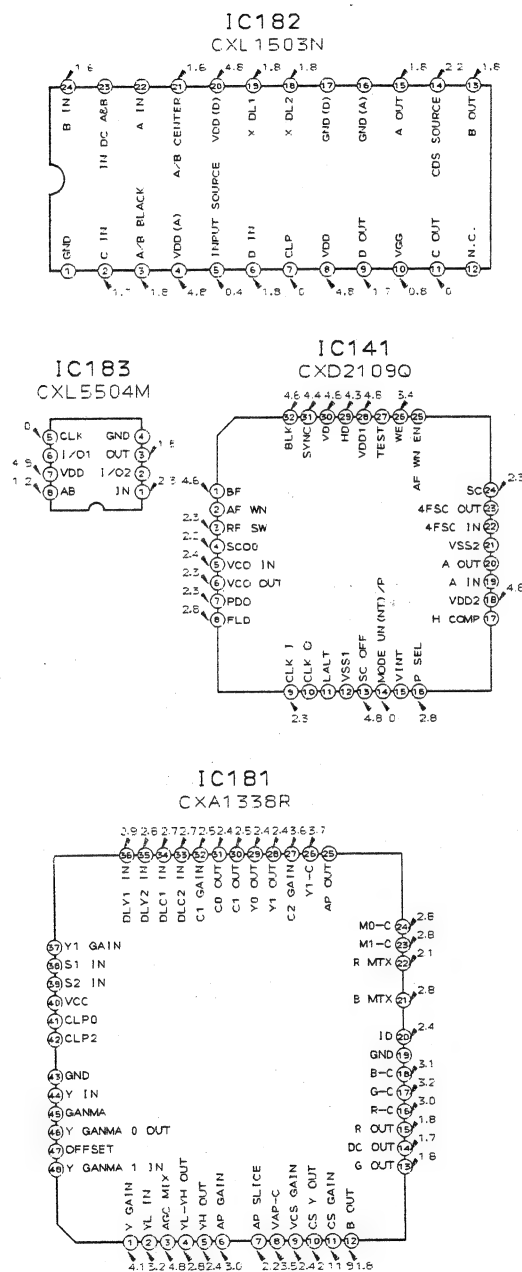
2-14-1. MAGNIFIED IC's

■ VC-98P BOARD (1/4) : IC141, IC181, IC182, IC183

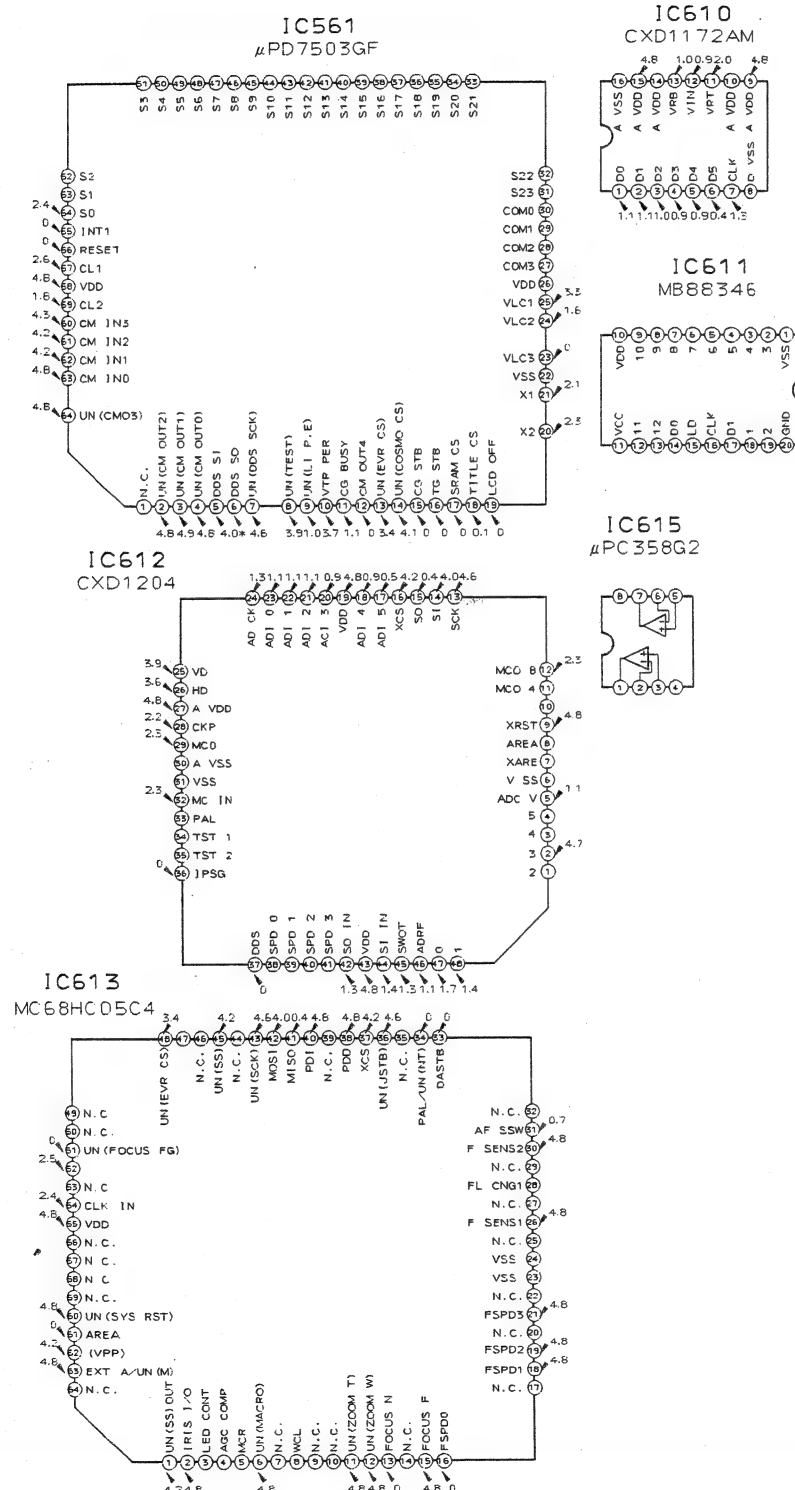
■ VC-98P BOARD (3/4) : IC561, IC610 — IC613, IC615

■ VS-72 BOARD (3/3) : IC501, IC502, IC504, IC505, IC601, IC604 (1/2), IC604 (2/2), IC605, IC607

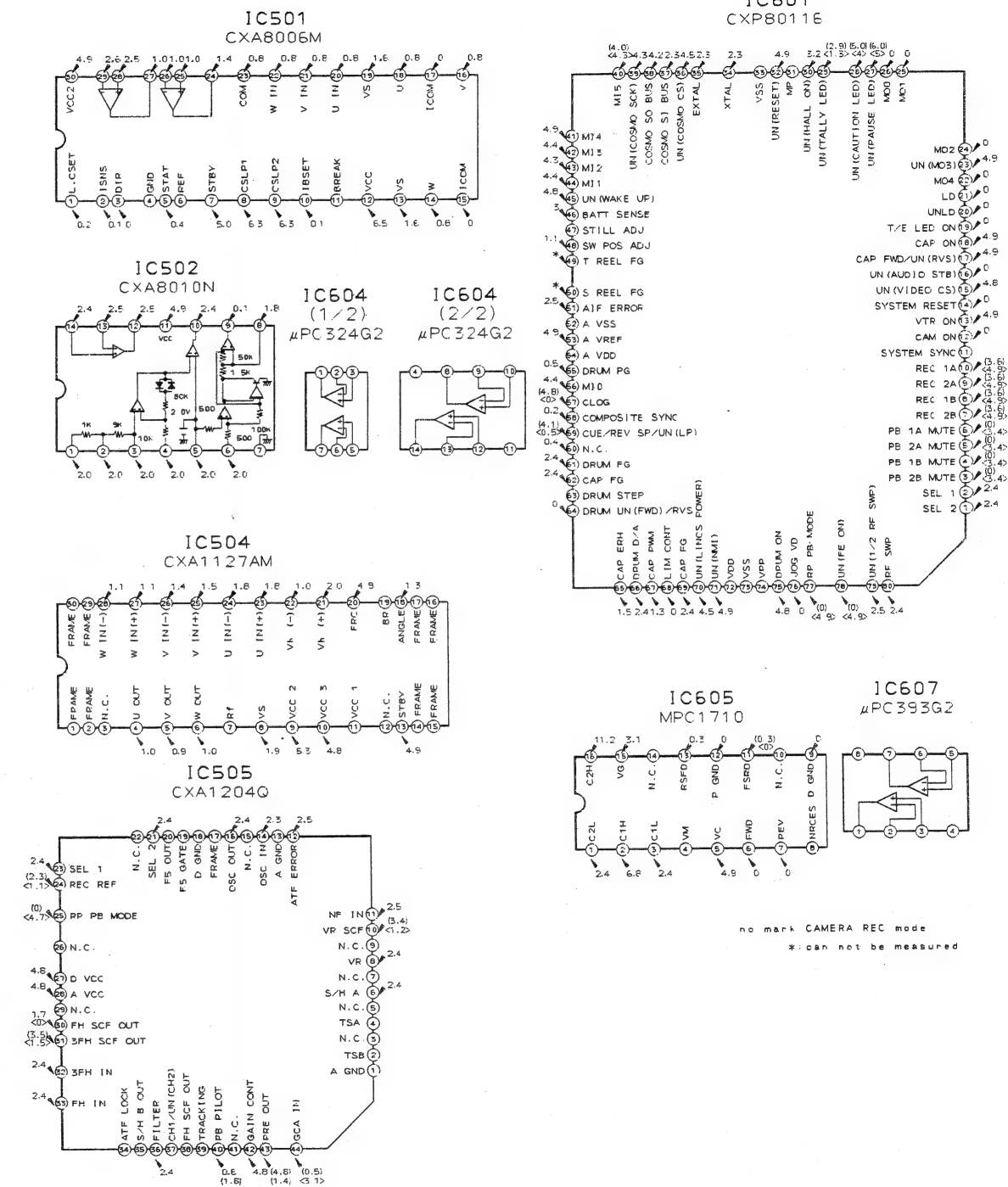
VC-98P BOARD (1/4)



VC-98P BOARD (3/4)



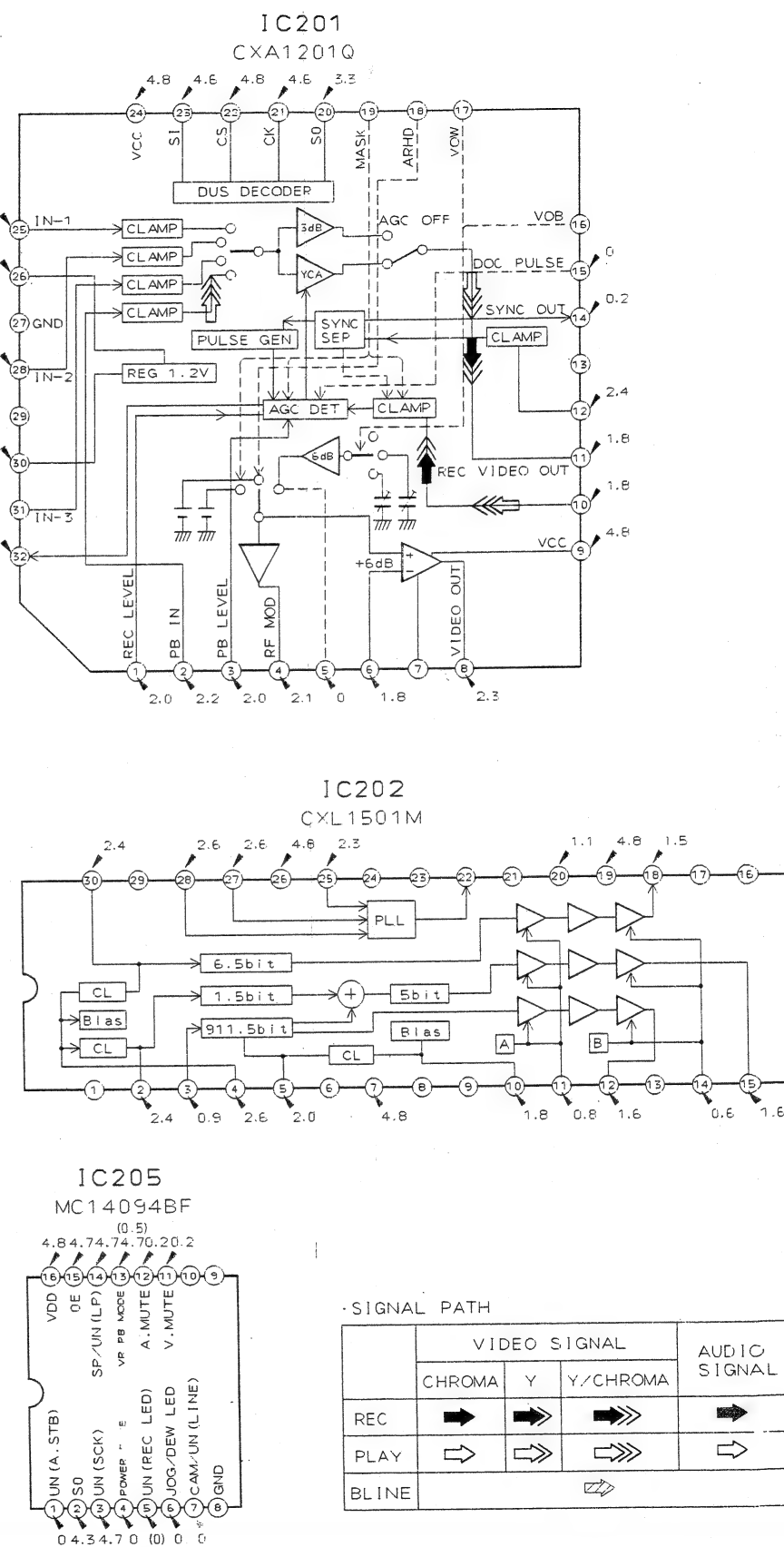
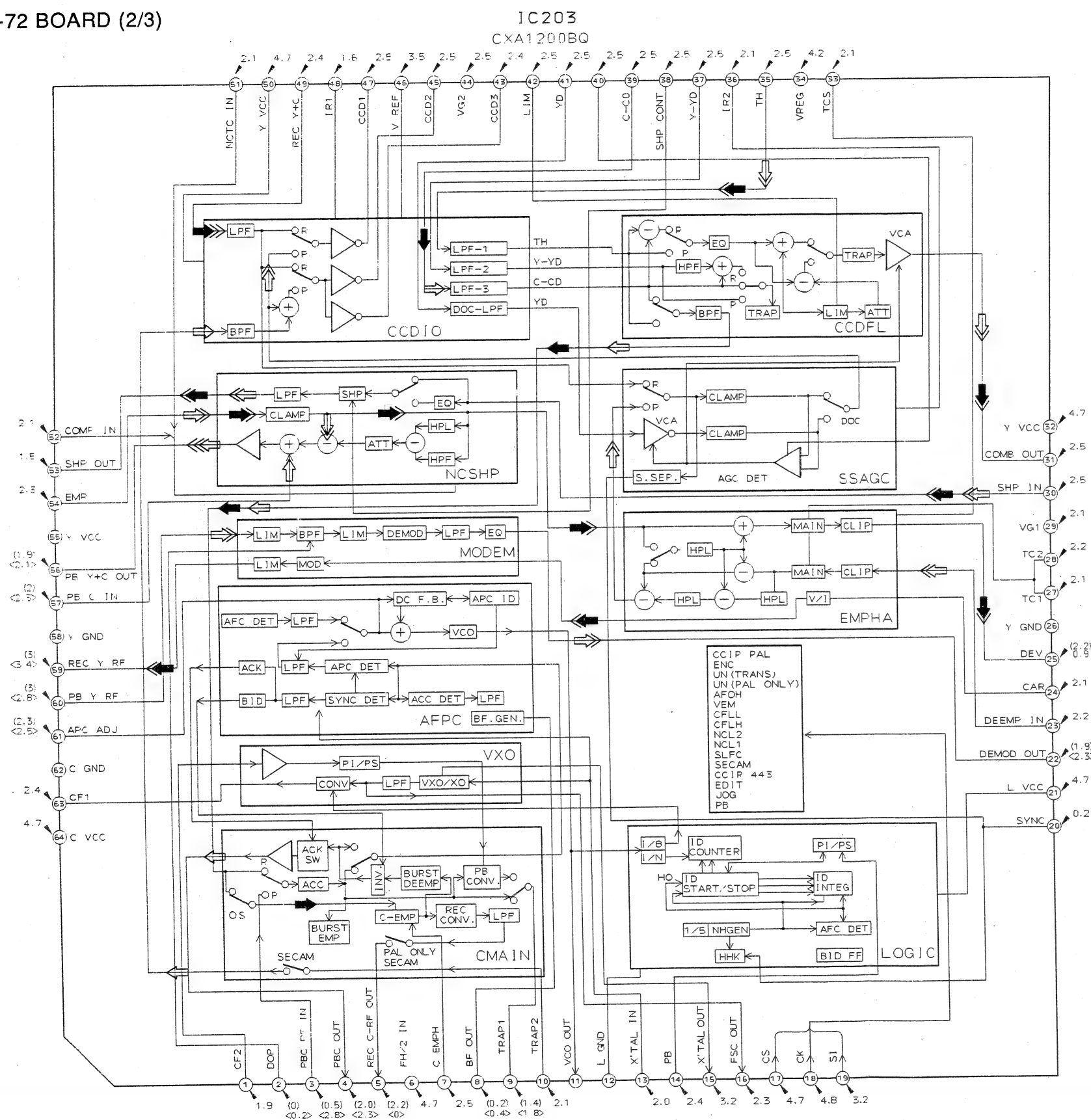
VS-72 BOARD (3/3)



MAGNIFIED IC's

■ VS-72 BOARD (2/3) : IC201 — IC205

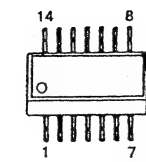
VS-72 BOARD (2/3)



MAGNIFIED IC's

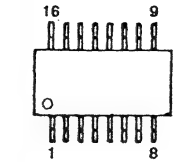
2-14-2. PINS

AN2512S-T1



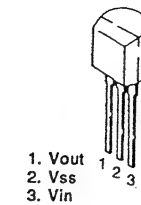
(TOP VIEW)

CXD1172AM-T1



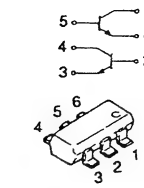
(TOP VIEW)

S-81350AG-REG

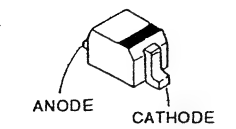


1. Vout
2. Vss
3. Vin

XN4213-TX

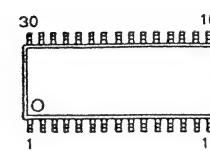


MA110-TX
MA111-TX



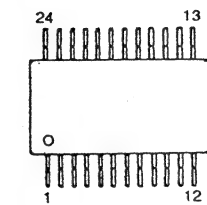
ANODE
CATHODE

CXA1047M-T5
CXA1127AM-T1



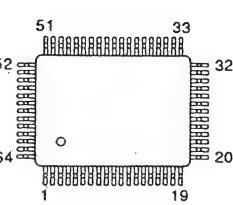
(TOP VIEW)

CXL1503N-T3



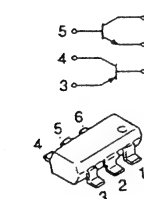
(TOP VIEW)

μPD65014GB-011

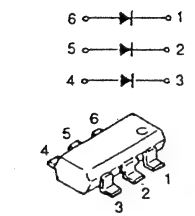


(TOP VIEW)

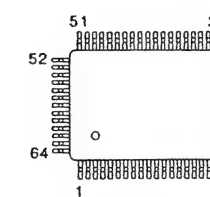
XN4601 (TX)



MA121-TX

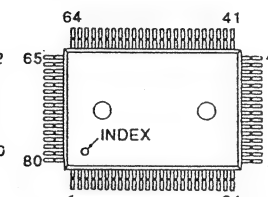


CXA1200BQ
μPD7503GF-J50-3B8



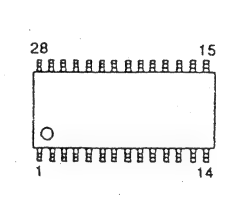
(TOP VIEW)

CXP80116-814Q



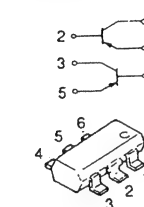
(MARKING SIDE VIEW)

LH531A-E1

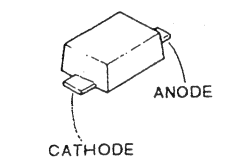


(TOP VIEW)

XN6401

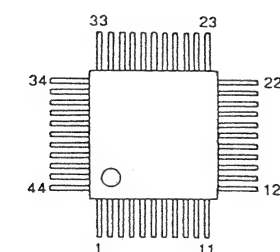


MA8082-M (TX)

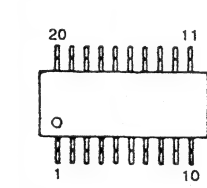


ANODE
CATHODE

CXA1204Q

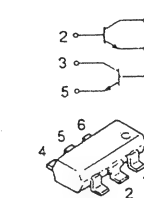


MB88341PFV-T3

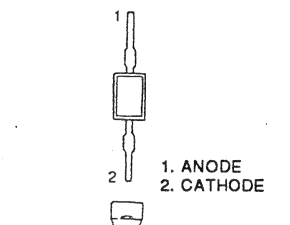


(TOP VIEW)

XN6215-TX
XN6501-TX

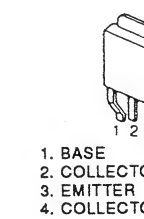


TLS221



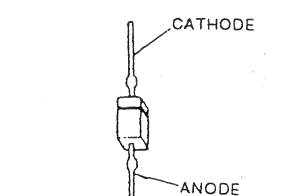
1. ANODE
2. CATHODE

2SB1202FAST-TL



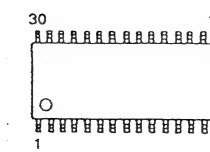
1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

1SS283-T1



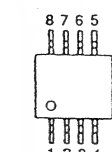
CATHODE
ANODE

CXL1501M-T5



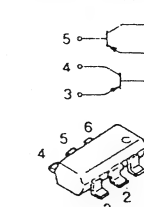
(TOP VIEW)

RC3414M-T1
μPC1037GR-E1

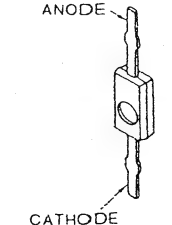


(TOP VIEW)

IMT1UST110
XN4111-TX
XN4113-TX



1T32-T8
1T33C-T8-01



ANODE
CATHODE



FUJIX-8
VIDEO
SYSTEM

8

[NEW PARTS LIST]

PARTS LIST

AE/UK Models

FUJIX-8 CAMCORDER

FF60WIDE

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splasher and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED LINE WITH MARK Δ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH FUJI PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY FUJI PHOTO FILM CO., LTD.

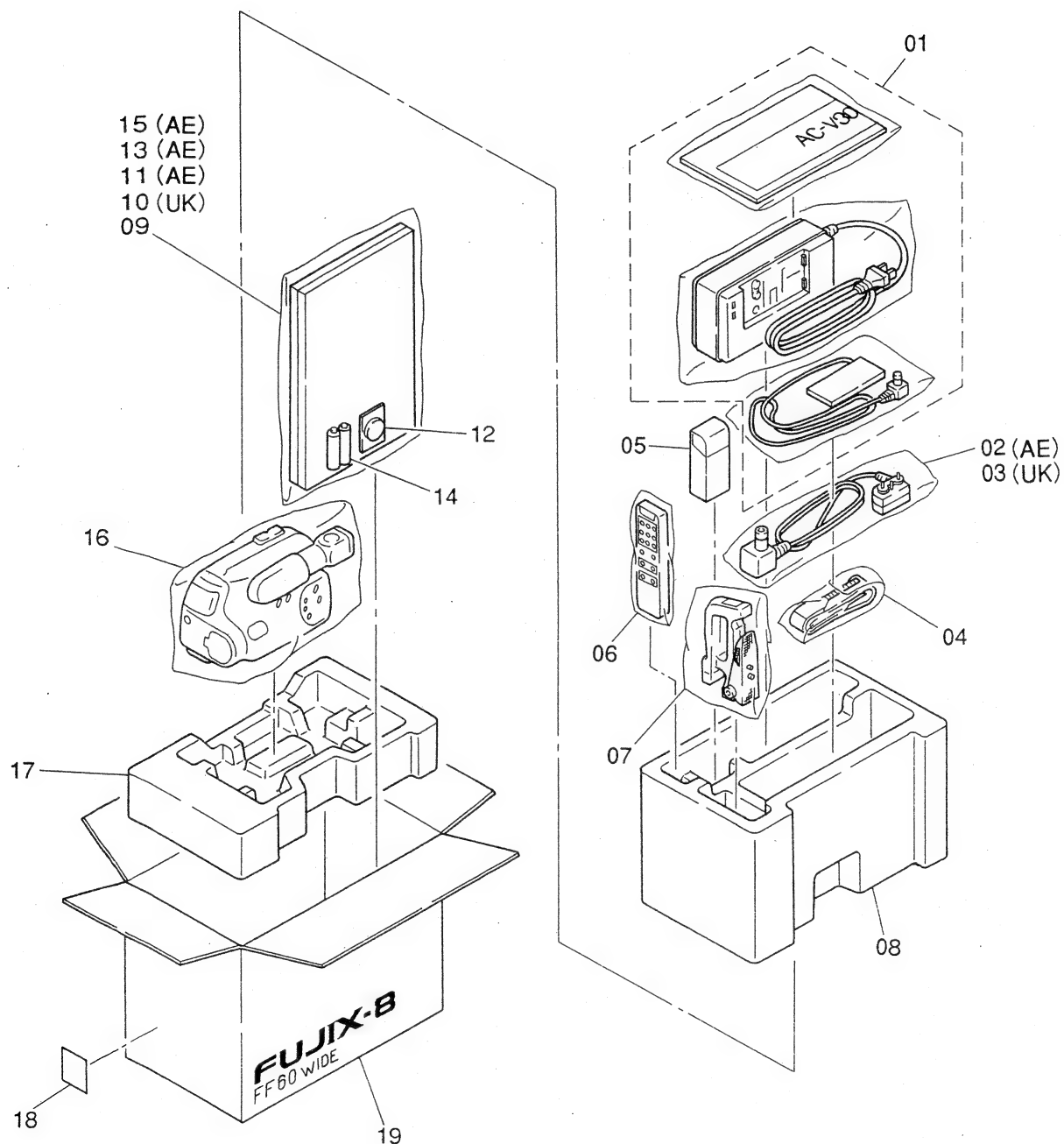
CONTENTS

	Page
1. Packing and Accessories	4
2. Mechanical Parts	
A. CABINET (L) ASSEMBLY	6
B. CABINET (R) ASSEMBLY	8
C. MAIN BOARDS AND CAMERA ASSEMBLIES	10
D. CASSETTE COMPARTMENT HOLDER ASSEMBLY	12
E. LS CHASSIS ASSEMBLY	14
F. MECHANISM CHASSIS ASSEMBLY (1)	16
G. MECHANISM CHASSIS ASSEMBLY (2)	18
3. Electrical Parts	20
4. INDEX	
INDEX FOR EXPLODED VIEW	56

1 Packing and Accessories

FF60WIDE PARTS LIST

1. Packing and Accessories



1 Packing and accessories

Ref.No.	Parts No.	Description	Supply	Price	Remark
01	KA6767-829C	AC-V30/F	FTYO	V	
02	KA6768-392A	RFU-90EF (AE)	FTYO	N	
03	KA6767-724A	RFU-89EA (UK)	N.S.		
04	J3728-61901	BELT, SHOULDER	FTYO	J	
05	KA6768-212B	NP5A-F	N.S.		
06	FZ00006-200	REMOTE CONTROLLER (RM805-T)	FTYO	L	
07	BU00007-402	GRIP ASSY, ACTION (G806-T)	FTYO	S	
08	J3943-38301	CUSHION (UPPER)	FTYO	C	
09	3-701-625-01	BAG, PLASTIC, STANDARD			
10	J3753-18151	MANUAL, INSTRUCTION F (UK)	FTYO	G	
11	J3753-18141	MANUAL, INSTRUCTION F (AE)	FTYO	G	
12	K1528-11321	BATTERY, LITHIUM CR2025	N.S.		
13	BB00623-100	INSERTION, LITHIUM F	N.S.		
14	1-528-203-11	BATTERIES, MANGANESE (R03)			
15	K3764-68942	DBP CAUTION, VIDEO (AE)	N.S.		
16	3-704-281-01	BAG, PROTECTION (STANDARD)			
17	J3943-38401	CUSHION (LOWER)	FTYO	C	
18	BB00462-100	LABEL, DOUBLE, (WHITE)	N.S.		
19	K3943-38201	INDIVIDUAL CARTON	FTYO	E	

FTYO : Fuji Tokyo
 N.S. : Not Supply
 No mark : Sony Belgium

[Statement of Packing]

● When packing each set, the statement of the camera shall be as follows.

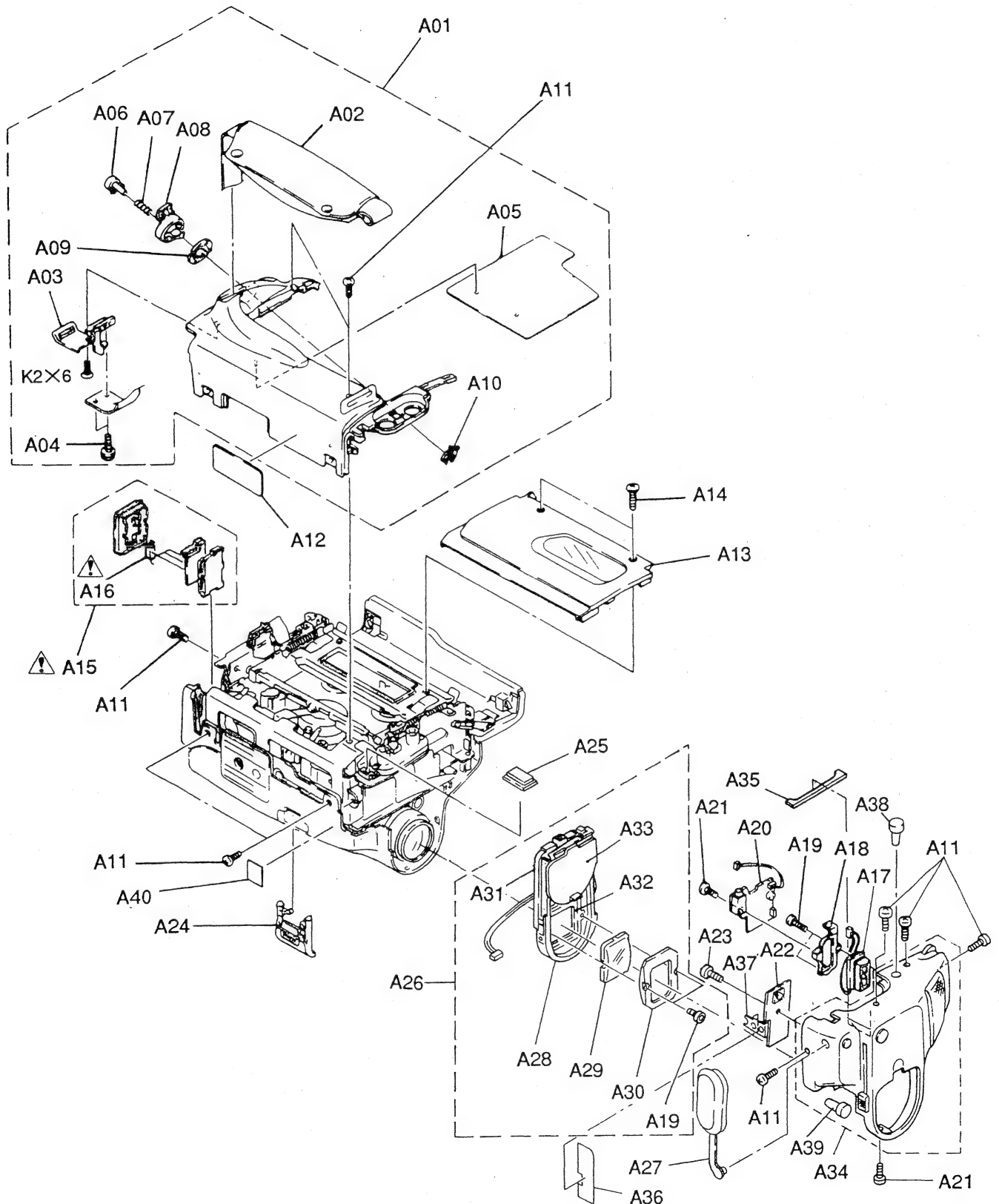
- | | |
|-----------------------------|---|
| 1. ZOOM (Main Lens) | : WIDE End |
| 2. FOCUS (Main Lens) | : Not specified |
| 3. CASSETTE COMPARTMENT | : Down |
| 4. VIEW ADJUSTMENT | : Center click position |
| 5. LENS COVER | : Closed |
| 6. JACK COVER | : Attached (Jack Cover : VIDEO/AUDIO OUT) |
| 7. POWER SWITCH | : Off |
| 8. STAND-BY SWITCH | : Off (Lock) |
| 9. LITHIUM BATTERY CASE LID | : Attached |
| 10. EDIT | : Off |
| 11. WIDE LENS KNOB | : Waiting position of Wide Converter Lens (Left side) |
| 12. FINDER | : Shortened and at horizontal position |

2 Mechanical Parts

FF60WIDE PARTS LIST

2. Mechanical Parts

A. CABINET (L) ASSEMBLY



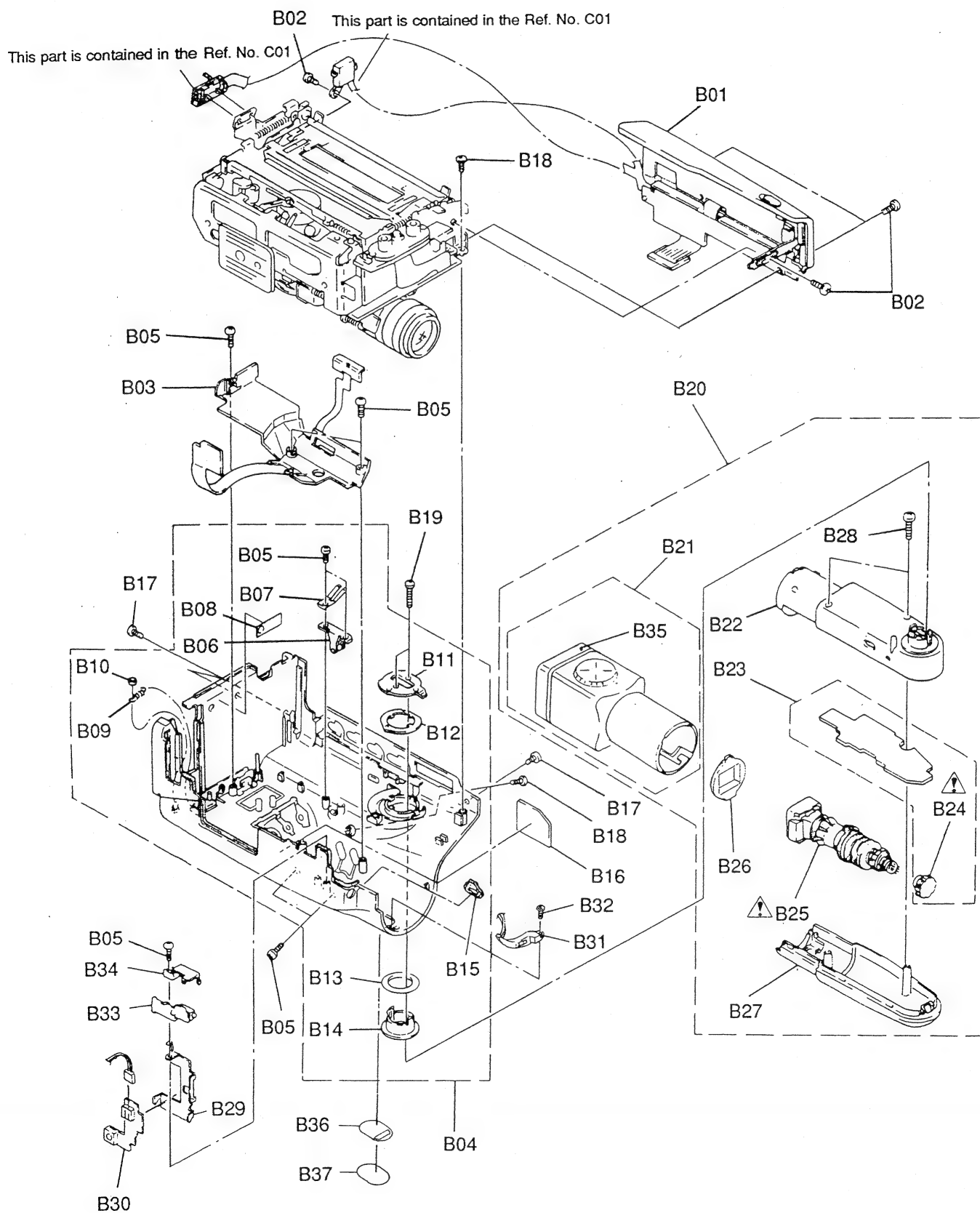
Ref.No.	Parts No.	Description	Supply	Price	Remark
A01	JA7081-665A	CABINET (LEFT) BLOCK ASSY	FTYO	J	
A02	J3942-47901	BELT, GRIP	N.S.		
A03	3-747-709-01	BRACKET, BELT			
A04	3-669-480-12	SCREW, +PTPWH 2			
A05	3-747-708-03	COVER, DRUM			
A06	3-736-343-01	BUTTON, S/S			
A07	3-578-221-03	SPRING, COMPRESSION			
A08	3-747-722-02	LEVER, STBY			
A09	3-736-364-01	SPRING, STANDBY			
A10	3-747-710-01	STOPPER RING, LEVER, STBY			
A11	3-719-381-01	SCREW (M2X4), P2, NYLOCK	FTYO	A	
A12	J3942-02501	LABEL, MODEL NUMBER	FTYO	D	
A13	JX3940-7781	COVER ASSY, CASSETTE			
A14	3-727-902-11	SCREW (M1.4), SPECIAL			
A15	1-537-297-21	TERMINAL BOARD (BATTERY)			
A16	1-532-778-21	FUSE, MICRO (SECONDARY)			
A17	1-542-126-11	UNIT, MICROPHONE			
A18	J3942-46501	PLATE, GROUND, MICROPHONE	FTYO	C	
A19	3-719-601-01	SCREW (B2X5), TAPPING, P3			
A20	A-7071-190-A	MA-73P BOARD, COMPLETE			
A21	3-713-786-51	SCREW (M2X3), P2	FTYO	E	
A22	KA7052-727A	SW-178 BOARD, COMPLETE			
A23	3-719-601-01	SCREW (B2X5), TAPPING, P3	FTYO	A	
A24	J3942-44701	LID, BATTERY CASE, LITHIUM			
A25	3-736-894-01	COVER, OUTPUT			
A26	JX394-056-01	W-CON ASSY	FTYO	M	
A27	J3942-46301	COVER, JACK	FTYO	A	
A28	J3942-48102	HOLDER, COVER	N.S.		Only supplied under "A26"
A29	J3942-47301	LENS, CONVERTER	N.S.		Only supplied under "A26"
A30	J3942-47401	FRAME, LENS	N.S.		Only supplied under "A26"
A31	J3942-48203	BASE	N.S.		Only supplied under "A26"
A32	J3942-45503	HOLDER, LENS	N.S.		Only supplied under "A26"
A33	J3942-48001	COVER, LENS	N.S.		Only supplied under "A26"
A34	JX3940-7791	PANEL ASSY, F	FTYO	J	
A35	J3942-42601	COVER, DUST	FTYO	A	
A36	3-747-704-01	SHEET, JACK			
A37	3-942-420-02	PLATE, GROUND, BL			
A38	3-728-267-01	COVER, JACK 3.5			
A39	3-728-266-01	COVER, JACK 2.5			
A40	4-310-379-01	LABEL, NEMKO			

FTYO : Fuji Tokyo
 N.S. : Not Supply
 No mark : Sony Belgium

2 Mechanical Parts

FF60WIDE PARTS LIST

B. CABINET (R) ASSEMBLY



Ref.No.	Parts No.	Description	Supply	Price	Remark
B01	K1466-59121	SWITCH BLOCK, OPERATION (FK-0)	FTYO	P	
B02	3-713-786-51	SCREW (M2X3), P2			
B03	K1466-38321	SWITCH BLOCK, OPERATION (CF-0)	FTYO	N	
B04	JA7081-664A	CABINET (RIGHT) BLOCK ASSY	FTYO	M	
B05	3-719-601-01	SCREW (B2X5), TAPPING, P3			
B06	X-3747-701-1	PIN ASSY, LOCK, EVF			
B07	3-747-713-01	PLATE, GROUND, EVF			
B08	3-747-718-01	SHEET, GROUND			
B09	3-674-402-01	SPRING, TENSION			
B10	3-701-436-21	WASHER ϕ 1.6			
B11	3-747-111-01	PLATE, LOCK, TILT			
B12	3-747-110-01	SPRING, LEAF, TILT			
B13	3-747-112-01	RING, TILT			
B14	3-747-109-01	SLEEVE, EVF			
B15	J3942-41601	CUSHION, MACRO	N.S.		
B16	3-747-157-01	SHEET, PROTECTION, T			
B17	3-719-381-01	SCREW (M2X4), P2, NYLOCK			
B18	3-719-601-01	SCREW (B2X5), TAPPING, P3			
B19	3-740-546-01	SCREW (M2X10), P3, NYLOCK			
B20	KA7019-330A	BLOCK ASSY, EVF	N.S.		
B21	JX3940-6161	HOLDER BLOCK ASSY, FINDER	FTYO	M	
B22	JX3940-5582	CABINET ASSY (LEFT), EVF	FTYO	E	
B23	A-7062-393-B	VF-40P BOARD, COMPLETE	FTYO	P	
B24	△ 1-540-019-21	SOCKET ASSY, CRT (W951)			
B25	△ 1-452-565-11	CRT ASSY			
B26	J3942-46602	COVER, CRT	FTYO	F	
B27	K3747-74525	CABINET (RIGHT), EVF	FTYO	B	
B28	3-713-790-31	SCREW (B2X8), TAPPING, P3			
B29	J3942-44601	HOLDER, MACRO BOARD	FTYO	J	
B30	KA7052-729A	SW-177 BOARD, COMPLETE	FTYO	E	
B31	J1572-71821	SWITCH, SLIDE	FTYO	H	
B32	3-713-786-51	SCREW (M2X3), P2			
B33	KA7071-446A	EL-13P BOARD, MOUNT	FTYO	J	
B34	3-747-712-01	HOLDER, EL			
B35	J3942-46801	CUP, EYE	N.S.		
B36	J3942-42201	WINDOW, DOUBLE FACE	FTYO	A	
B37	J3942-43901	WINDOW, FOCUS	FTYO	D	

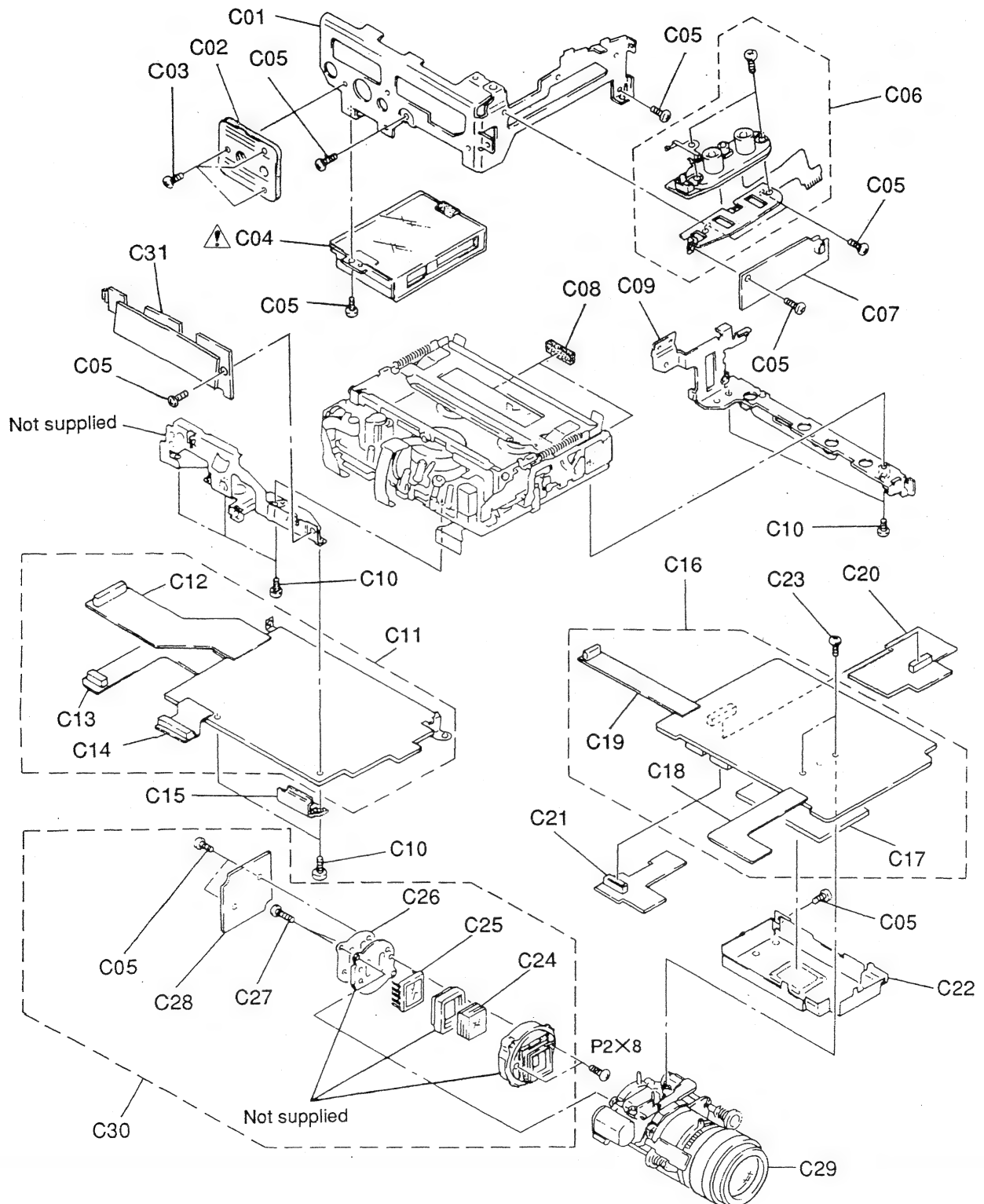
FTYO : Fuji Tokyo
N.S. : Not Supply
No mark : Sony Belgium

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

2 Mechanical Parts

FF60WIDE PARTS LIST

C. MAIN BOARDS AND CAMERA ASSEMBLIES



Ref.No.	Parts No.	Description	Supply	Price	Remark
C01	X-3747-706-2	FRAME ASSY, MD			
C02	3-736-396-02	SCREW, TRIPOD			
C03	3-719-381-01	SCREW (M2X4), P2, NYLOCK			
C04	△ A-7062-288-A	DD-30 BOARD, COMPLETE (DC-DC CONVERTER UNIT)			
C05	3-713-786-51	SCREW (M2X3), P2			
C06	1-580-031-12	PIN JACK ASSY			
C07	A-7052-388-A	AU-95P BOARD, COMPLETE			
C08	3-736-841-02	SPACER, FK			
C09	3-747-751-02	FRAME, UPPER			X-3940-014-1
C10	3-704-197-21	SCREW (M1.4X2.5), NYLOCK			
C11	A-7052-389-A	VS-72 BOARD, COMPLETE			
C12	A-7071-200-A	FP-330 FLEXIBLE BOARD			
C13	1-630-592-11	FP-184 FLEXIBLE BOARD, (W604)			
C14	1-630-591-11	FP-182 FLEXIBLE BOARD			
C15	3-736-323-01	SHIELD, CONNECTOR, RP			
C16	KA7062-831A	VC-98P BOARD, COMPLETE	FTYO	VE	
C17	A-7068-189-A	DT-77K BOARD, COMPLETE (HIC)			
C18	A-7071-175-A	FP-362 FLEXIBLE BOARD			
C19	A-7071-199-A	FP-331 FLEXIBLE BOARD			
C20	KA7062-832A	TI-37P BOARD, COMPLETE	FTYO	Q	
C21	KA7052-828A	LD-43 BOARD, COMPLETE	FTYO	M	
C22	3-940-267-02	CASE (UPPER), SHIELD, VC			3-747-166-11
C23	3-719-601-01	SCREW (B2X5), TAPPING, P3			
C24	1-547-408-11	FILTER BLOCK, OPTICAL (IR-03)			
C25	8-752-604-51	IC ICX045AK-1 (CCD IMAGER)			
C26	3-749-945-01	SHEET, INSULATING, CCD			
C27	3-747-151-11	SCREW, +P SPECIAL (2X11)(B TIGHT), TAPPING			
C28	KA7071-445A	CD-66P BOARD, MOUNT	FTYO	L	
C29	J1547-46921	LENS, ZOOM (44YB)	FTYO	VB	
C30	KA7030-258A	CCD ASSY	FTYO	VC	
C31	A-7051-855-A	PD-18P BOARD, CPMPLTE			

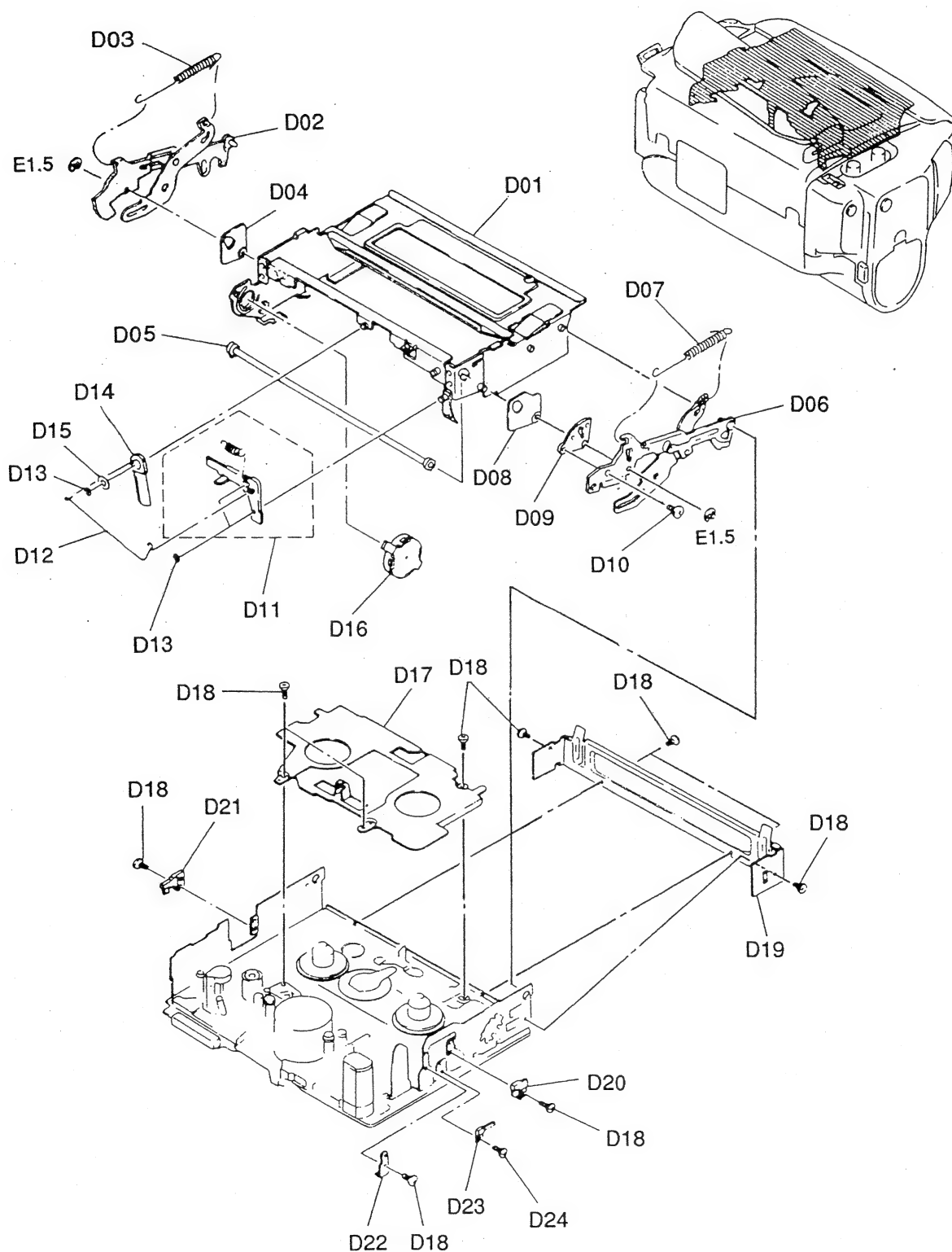
FTYO : Fuji Tokyo
 N.S. : Not Supply
 No mark : Sony Belgium

The components identified by mark △ or dotted
 line with mark △ are critical for safety.
 Replace only with part number specified.

2 Mechanical Parts

FF60WIDE PARTS LIST

D. CASSETTE COMPARTMENT HOLDER ASSEMBLY



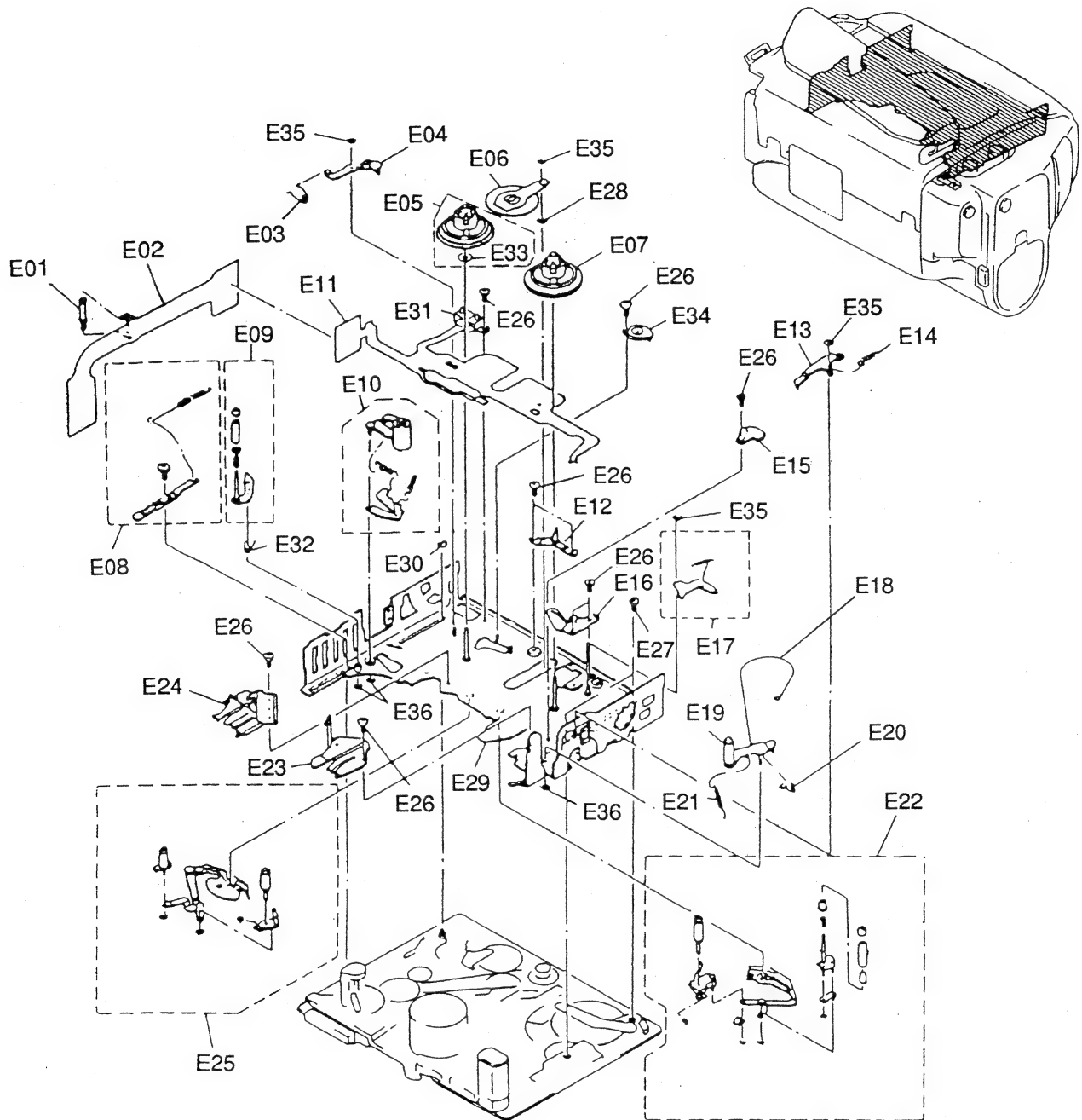
Ref.No.	Parts No.	Description	Supply	Price	Remark
D01	X-3739-807-1	HOLDER ASSY (2), CASSETTE COMPARTMENT			X-3739-807-5
D02	X-3739-814-1	ARM ASSY (TAKE-UP) (2), F			
D03	3-739-872-01	SPRING, TENSION			
D04	3-728-145-01	BEARING, MIDWAY GEAR, T			
D05	X-3727-920-1	GEAR ASSY, MIDWAY			
D06	X-3739-815-1	ARM ASSY (SUPPLY) (2), F			X-3739-815-2
D07	3-739-873-01	SPRING, TENSION			
D08	3-728-146-01	BEARING, MIDWAY GEAR, S			
D09	3-739-808-01	PLATE, ARM ADJUSTMENT (2)			
D10	3-728-126-01	SCREW (M1.4X2), SPECIAL HEAD			
D11	A-7040-164-A	ARM BLOCK ASSY, TP			3-749-304-01
D12	3-728-277-01	BAR, JOINT			
D13	3-331-007-11	WASHER (φ1.0)			
D14	X-3727-922-2	PROTECTOR ASSY, T			
D15	3-728-278-01	WASHER (φ1.2)			
D16	X-3739-809-1	DAMPER ASSY (2)			
D17	3-728-227-01	BASE, LED			
D18	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD			
D19	3-736-808-03	FRAME 2, LS			
D20	3-727-957-01	HOLDER, SENSOR, S			
D21	3-727-954-01	HOLDER, SENSOR, T			1-554-938-11
D22	3-727-946-01	SUPPORT, LS			
D23	1-572-611-11	SWITCH, LEAF (S991)			
D24	3-728-148-01	SCREW (M1.4X2.5), SPECIAL HEAD			

FTYO : Fuji Tokyo
 N.S. : Not Supply
 No mark : Sony Belgium

2 Mechanical Parts

FF60WIDE PARTS LIST

E. LS CHASSIS ASSEMBLY



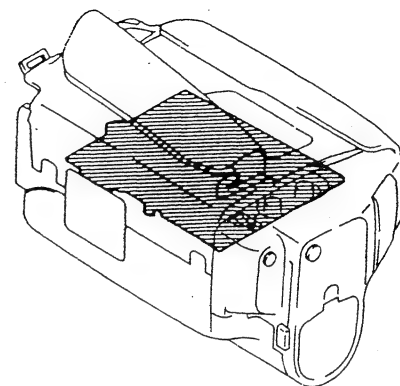
Ref.No.	Parts No.	Description	Supply	Price	Remark
E01	3-739-807-01	SHAFT, FLEXIBLE ROTARY (2)			
E02	1-627-722-11	FP-149 FLEXIBLE BOARD			
E03	3-732-068-01	SPRING RATCHET			
E04	X-3728-005-1	RATCHET ASSY, T			
E05	X-3727-951-2	TABLE ASSY, REEL, T			
E06	X-3727-926-1	ARM ASSY, GEAR			
E07	X-3727-952-1	TABLE ASSY, REEL, S			
E08	A-7040-150-A	SLIDER BLOCK ASSY, CAM			
E09	A-7040-151-A	ARM BLOCK ASSY, TG11			
E10	A-7040-240-A	ARM BLOCK ASSY, PINCH			
E11	A-7061-238-A	FP-115 FLEXIBLE BOARD			
E12	X-3940-087-3	BASE ASSY, RL			X-3940-087-1
E13	3-732-077-01	RATCHET, S			
E14	3-728-121-01	SPRING, TENSION			3-732-076-01
E15	3-728-200-01	ADJUSTMENT BLOCK, TG1			
E16	3-728-206-01	PLATE, CAM, LS			
E17	A-7040-158-C	ARM BLOCK ASSY, SOFT, S			3-732-079-01, 3-732-078-01
E18	X-3727-923-2	STRING ASSY			
E19	X-3749-001-3	ARM ASSY, TG1			
E20	3-728-124-01	HOLDER, JOINT			
E21	3-728-071-01	SPRING, TENSION			
E22	A-7040-211-J	ARM BLOCK ASSY, GUIDE, S			A-7040-211-B
E23	3-728-226-01	RAIL, GUIDE, S			
E24	3-728-244-01	RAIL, GUIDE, T			
E25	A-7040-148-A	ARM BLOCK ASSY, GUIDE, T			
E26	3-728-103-11	SCREW (M1.4X1.6), SPECIAL HEAD			
E27	3-728-126-01	SCREW (M1.4X2), SPECIAL HEAD			
E28	3-321-394-01	WASHER			
E29	X-3727-993-1	CHASSIS ASSY, LS			
E30	3-578-254-00	STOPPER RING E1.2			
E31	1-571-647-11	SWITCH, PUSH (2 KEY) (S992)			
E32	3-727-939-01	SPRING, TORSION			
E33	3-701-439-11	WASHER $\phi 3$			
E34	X-3727-914-4	CLUTCH ASSY, ONE WAY			
E35	3-728-091-01	WASHER, STOPPER ($\phi 0.8$)			
E36	3-315-414-31	WASHER ($\phi 0.8$)			

FTYO : Fuji Tokyo
 N.S. : Not Supply
 No mark : Sony Belgium

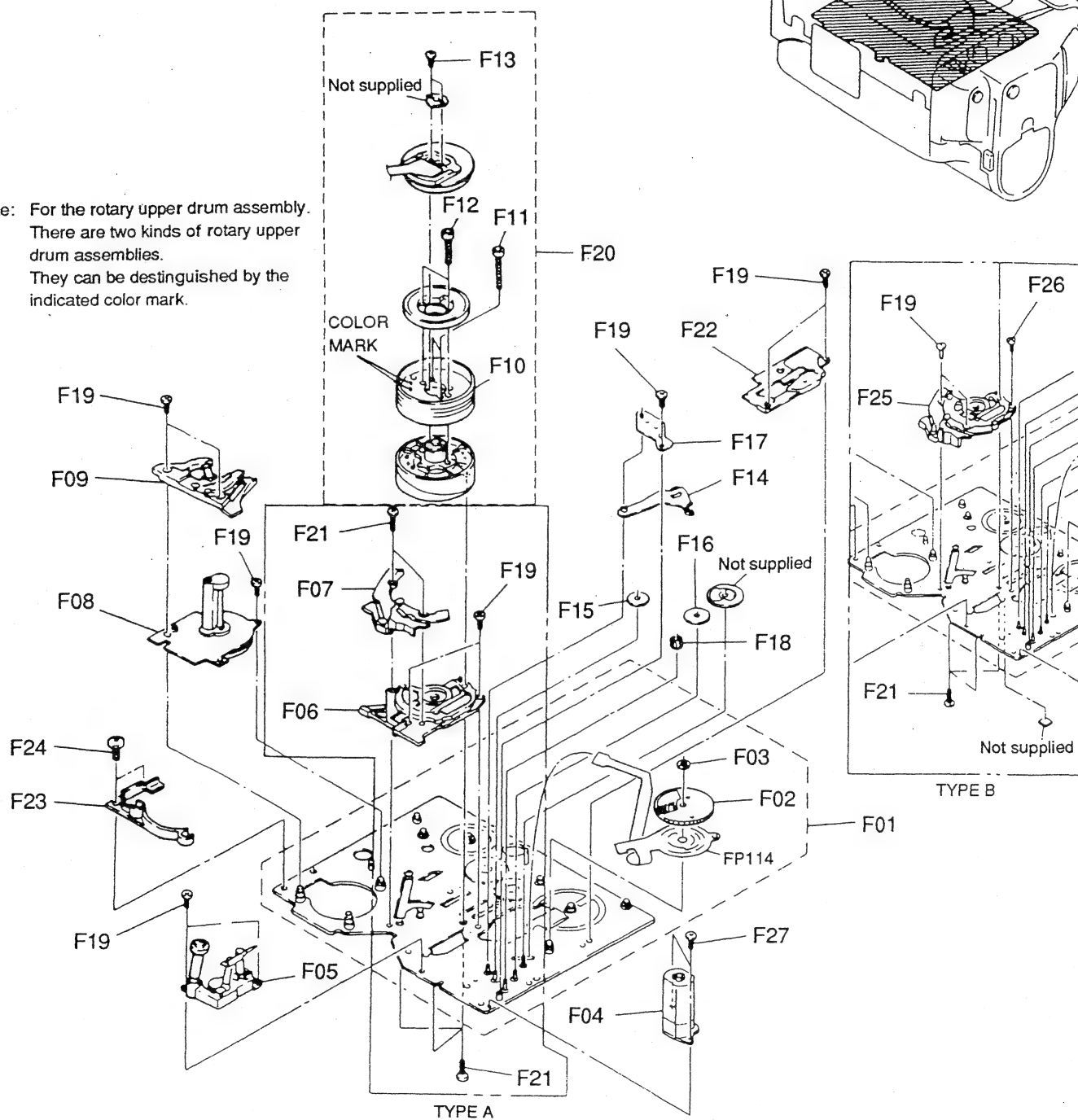
2 Mechanical Parts

FF60WIDE PARTS LIST

F. MECHANISM CHASSIS ASSEMBLY (1)



Note: For the rotary upper drum assembly. There are two kinds of rotary upper drum assemblies. They can be distinguished by the indicated color mark.



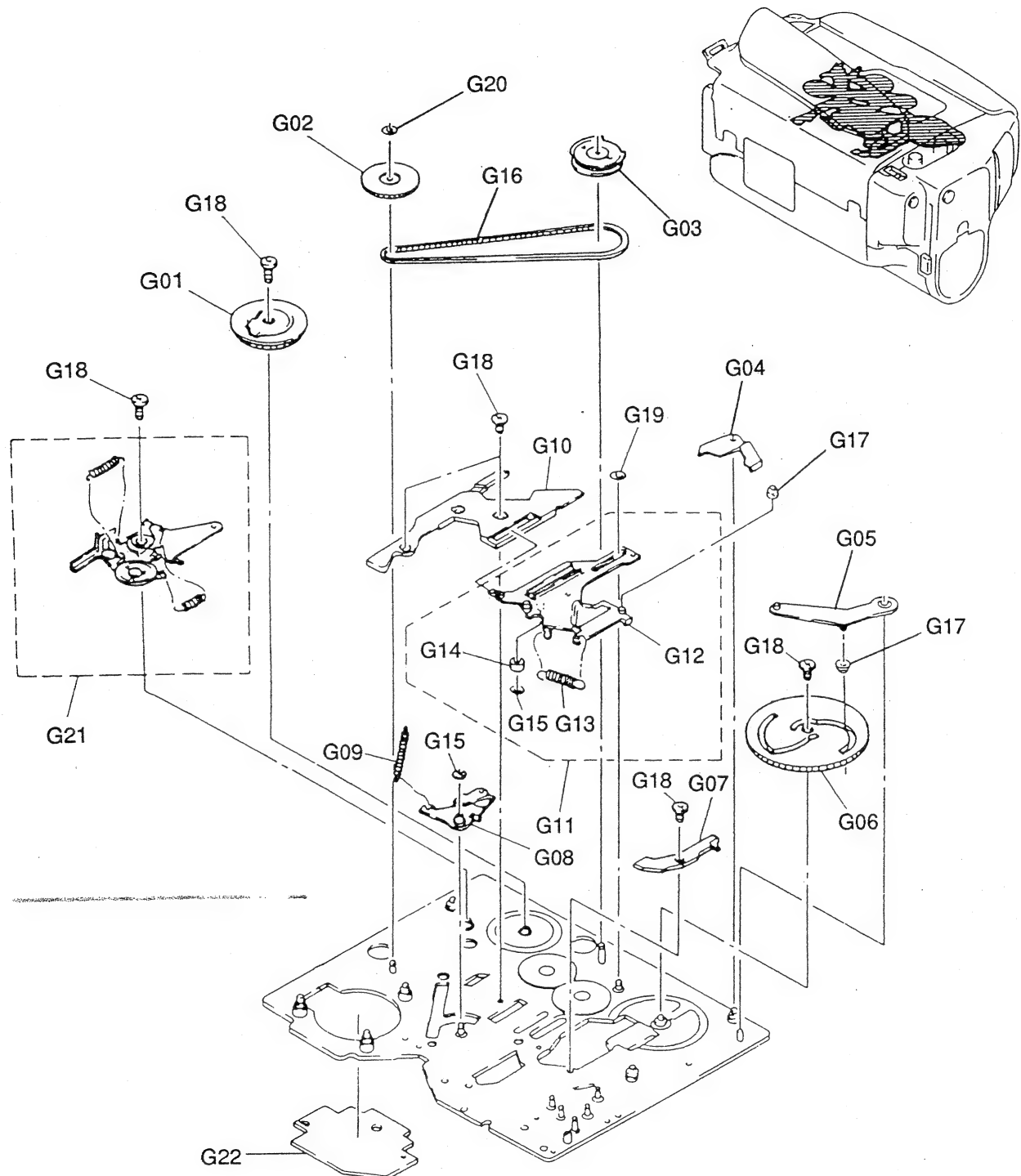
Ref.No.	Parts No.	Description	Supply	Price	Remark
F01	X-3940-618-1	CHASSIS BLOCK ASSY, MECHANISM			A-7040-154-A
F02	X-3727-915-1	GEAR ASSY, MODE			
F03	3-325-290-21	WASHER, STOPPER			
F04	1-541-607-11	DC MOTOR (LA12G-344VA)			
		(LOADING)(M903)			
F05	A-7040-209-A	BASE 1 BLOCK ASSY (2), GUIDE RAIL			
F06	X-3727-949-1	BASE ASSY, DRUM (TYPE A)			
F07	A-7040-171-C	BASE 2 BLOCK ASSY, GUIDE RAIL (TYPE A)			
F08	8-835-329-01	DC MOTOR U-21A (C APSTAN) (M902)			
F09	X-3940-619-1	BASE 3 ASSY, GUIDE RAIL			X-3727-933-3
F10	A-7049-189-A	DRUM ASSY, UPPER, ROTARY (DGR-32-R-(2))			A-7049-198-A
		MARKING: RED, BLUE, REDDISH-BROWN, BLUISH-BROWN			
F10	A-7049-190-A	DRUM ASSY, UPPER, ROTARY (DGR-32-R-(1))			A-7049-197-A
		MARKING: GREEN, BLACK, GREENISH- BROWN, BLACKISH-BROWN			
F11	3-727-809-01	BOLT, HEXAGONAL HOLE (M1.7X3.3)			
F12	3-727-807-01	BOLT, HEXAGONAL HOLE (M1.4X5)			
F13	3-728-108-21	SCREW (M1.4X2.7), P2			
F14	X-3727-906-1	ARM ASSY			
F15	X-3727-903-1	No.1 GEAR ASSY			
F16	X-3727-904-1	No.2 GEAR ASSY			
F17	3-728-119-01	RETAINER, GEAR			
F18	3-728-149-01	No.0 GEAR			
F19	3-728-148-01	SCREW (M1.4X2.5), SPECIAL HEAD			
F20	A-7048-202-A	DRUM BLOCK ASSY (DGH-32A-R) (M901)			A-7048-214-A
F21	3-728-108-01	SCREW (M1.4X4.5), P2			
F22	3-728-231-01	BASE, CAM, TG-1			
F23	3-732-064-01	COVER, ROTOR			
F24	3-728-126-01	SCREW (M1.4X2), SPECIAL HEAD			
F25	A-7040-203-A	BASE (A) BLOCK ASSY, DRUM (TYPE B)			A-7040-203-C
F26	3-703-816-51	SCREW (M1.4X3.5) (TYPE B), SPECIAL HEAD			
F27	3-732-087-31	SCREW (M1.4X1.8), SPECIAL HEAD			

FTYO : Fuji Tokyo
 N.S. : Not Supply
 No mark : Sony Belgium

2 Mechanical Parts

FF60WIDE PARTS LIST

G. MECHANISM CHASSIS ASSEMBLY (2)



Ref.No.	Parts No.	Description	Supply	Price	Remark
G01	3-728-190-01	CAM B			
G02	X-3727-930-1	GEAR ASSY, CONVERSION			
G03	X-3727-931-1	PULLEY ASSY, RELAY			
G04	3-728-154-01	ARM, EJ			
G05	X-3727-916-1	ARM ASSY, LS			
G06	3-728-208-01	CAM A			3-728-208-02
G07	3-728-213-01	SUPPORT (S), GL			
G08	X-3727-924-2	ARM ASSY, GUIDE LOCK			
G09	3-728-015-01	SPRING, TENSION (POWER TENSION)			
G10	3-728-228-03	SUPPORT (T), GL			
G11	A-7040-153-A	SLIDER BLOCK ASSY, GL			
G12	X-3727-942-1	SLIDER ASSY, GL			
G13	3-727-929-01	SPRING, TENSION (POWER TENSION)			
G14	3-728-144-01	ROLLER, GL			
G15	3-331-007-11	WASHER ($\phi 1.0$)			
G16	3-728-212-01	BELT, RELAY			
G17	3-728-109-01	ROLLER, LS			
G18	3-728-148-11	SCREW (M1.4X2.5), SPECIAL HEAD			
G19	3-315-384-31	WASHER, STOPPER ($\phi 1.2$)			
G20	3-728-091-01	WASHER, STOPPER ($\phi 0.8$)			
G21	A-7040-152-A	ARM BLOCK ASSY, PINCH PRESS			
G22	3-743-631-01	COVER			

FTYO : Fuji Tokyo
 N.S. : Not Supply
 No mark : Sony Belgium

3 Electrical Parts

FF60WIDE PARTS LIST

3. Electrical Parts

NOTE:

The components indicated by mark Δ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

• Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.

• RESISTORS

All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable

• SEMICONDUCTORS

In each case, U: μ , forexample:
UA...: μ A..., UPA...: μ PA..., UPB...: μ PB,
UPC...: μ PC..., UPD...: μ PD...

• CAPACITORS

MF: μ F, PF: μ F

• COILS

MMH: mH, UH: μ H

• -XX, -X mean standardized parts, so they may have some difference from the original one.

AU-95P

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description

	A-7062-388A	AU-95P BOARD, COMPLETE (A-7062-388-A)			

	K1635-75221	AU-95 (P) BOARD (1-635-752-21)			
----- CAPACITOR -----					
C421	FCA08-107MB (1-126-206-21)	ELECT CHIP 100MF 20% 6.3V	C446	CBH01-392KD (1-163-016-91)	CERAMIC CHIP 3900PF B K 50V
C422	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V	C447	CSH01-221JC (1-162-957-91)	CERAMIC CHIP 220PF SL J 50V
C423	FCT08-105ME (1-135-147-91)	TANTAL. CHIP 1MF 20% 20V	C448	CBH01-222KC (1-162-966-91)	CERAMIC CHIP 2200PF B K 50V
C424	FCT08-105ME (1-135-147-91)	TANTAL. CHIP 1MF 20% 20V	C449	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C425	CBF01-682KC (1-162-969-91)	CERAMIC CHIP 6800PF B K 25V	C450	CCH01-050CC (1-162-910-91)	CERAMIC CHIP 5PF CH C 50V
C426	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C451	CSH01-471JD (1-163-133-91)	CERAMIC CHIP 470PF SL J 50V
C428	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V	C452	CCH01-050CC (1-162-910-91)	CERAMIC CHIP 5PF CH C 50V
C429	FCA01-470MB (1-126-205-21)	ELECT CHIP 47MF 20% 6.3V	C453	CBH01-472KC (1-162-968-91)	CERAMIC CHIP 4700PF B K 50V
C430	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V	C454	CSH01-221JC (1-162-957-91)	CERAMIC CHIP 220PF SL J 50V
C431	FCA01-6R8MG (1-126-199-21)	ELECT CHIP 6.8U 20% 35V	C455	CBF01-393KD (1-162-587-91)	CERAMIC CHIP 0.039MF B K 25V
C432	FCA01-470MB (1-126-205-21)	ELECT CHIP 47MF 20% 6.3V	C456	CBH01-681KC (1-162-963-91)	CERAMIC CHIP 680PF B K 50V
C433	FCA08-107MB (1-126-206-21)	ELECT CHIP 100MF 20% 6.3V	C457	CBH01-822KD (1-163-020-91)	CERAMIC CHIP 8200PF B K 50V
C434	FCT08-105ME (1-135-147-91)	TANTAL. CHIP 1MF 20% 20V	C458	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C437	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V	C459	FCT08-105ME (1-135-147-91)	TANTAL. CHIP 1MF 20% 20V
C438	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V	C460	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C439	CTC02-225MA (1-135-149-91)	TANTAL. CHIP 2.2MF A 20% 10V	C461	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C440	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C462	CTC02-225MA (1-135-149-91)	TANTAL. CHIP 2.2MF A 20% 10V
C441	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C463	FCA01-470MB (1-126-205-21)	ELECT CHIP 47MF 20% 6.3V
C442	FCB05-223KF (1-164-227-91)	CERAMIC CHIP 0.022MF B K 25V	C464	FCA01-470MB (1-126-205-21)	ELECT CHIP 47MF 20% 6.3V
C443	CSH01-221JC (1-162-957-91)	CERAMIC CHIP 220PF SL J 50V	C465	CSH01-151JC (1-162-955-91)	CERAMIC CHIP 150PF SL J 50V
C444	CTG08-474MA (1-135-145-91)	TANTAL. CHIP 0.47MF A 20% 35V	C466	CBH01-222KC (1-162-966-91)	CERAMIC CHIP 2200PF B K 50V
C445	CBH01-152KC (1-162-965-91)	CERAMIC CHIP 1500P B K 50V	C467	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
----- CONNECTOR -----					
CN401	FGC004-0141 (1-568-365-41)	CONNECTOR 14P BOARD TO BOARD	C469	CSH01-221JC (1-162-957-91)	CERAMIC CHIP 220PF SL J 50V
CN402	FGA002-0031 (1-566-758-11)	CONNECTOR 3P, 1.5MM STRAIGHT	C470	CSH01-101JC (1-162-953-91)	CERAMIC CHIP 100PF SL J 50V
			C471	CSH01-101JC (1-162-953-91)	CERAMIC CHIP 100PF SL J 50V

AU-95P

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
----- FILTER -----					
FL401	FLBF0004-00 (1-236-145-42)	FILTER, BAND PASS K4-RT-304087	R437	FRE005-153J (1-216-835-91)	METAL GLAZE 15K 5% 1/16W
----- IC -----					
IC401	FQHA0012-00 (8-752-033-06)	IC CXA1237AR-T3	R438	FRE005-222J (1-216-825-91)	METAL GLAZE 2.2K 5% 1/16W
----- COIL -----					
L401	LA007-101KA (1-412-032-22)	INDUCTOR CHIP 100UH 10% Q 20	R439	FRE005-272J (1-216-826-91)	METAL GLAZE 2.7K 5% 1/10W
L402	LA003-221KF (1-410-658-21)	INDUCTOR CHIP 220UH 10% Q 20	R440	FRE005-103J (1-216-833-91)	METAL GLAZE 10K 5% 1/16W
----- TRANSISTOR -----					
Q406	FQTD0004-01 (8-729-420-29)	TRANSISTOR 2SD1819A-QRS-TX	R441	FRE005-682J (1-216-831-91)	METAL GLAZE 6.8K 5% 1/16W
Q409	FQTD0004-01 (8-729-420-29)	TRANSISTOR 2SD1819A-QRS-TX	R444	FRE005-822J (1-216-832-91)	METAL GLAZE 8.2K 5% 1/16W
Q410	FQTD0004-01 (8-729-420-29)	TRANSISTOR 2SD1819A-QRS-TX	R445	FRE005-334J (1-216-851-91)	METAL GLAZE 330K 5% 1/16W
Q411	QTN20-230QA (8-729-905-16)	TRANSISTOR DTC144WU-T106	R446	FRE005-683J (1-216-843-91)	METAL GLAZE 68K 5% 1/16W
Q412	FQTP0002-00 (8-729-905-10)	TRANSISTOR DTA144WUT106	R447	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
Q413	FQTD0004-01 (8-729-420-29)	TRANSISTOR 2SD1819A-QRS-TX	R448	FRE005-222J (1-216-825-91)	METAL GLAZE 2.2K 5% 1/16W
Q414	FQTP0002-00 (8-729-905-10)	TRANSISTOR DTA144WUT106	R449	FRE005-223J (1-216-837-91)	METAL GLAZE 22K 5% 1/16W
Q415	FQTK0002-00 (8-729-821-90)	TRANSISTOR 2SK1332-3-TL	R450	FRE005-472J (1-216-829-91)	METAL GLAZE 4.7K 5% 1/16W
Q416	FQTD0004-01 (8-729-420-29)	TRANSISTOR 2SD1819A-QRS-TX	R451	FRE005-472J (1-216-829-91)	METAL GLAZE 4.7K 5% 1/16W
Q417	FQTB0005-00 (8-729-420-26)	TRANSISTOR 2SB1218A-QRS-TX	R452	FRE005-472J (1-216-829-91)	METAL GLAZE 4.7K 5% 1/16W
Q418	FQTB0005-00 (8-729-420-26)	TRANSISTOR 2SB1218A-QRS-TX	R453	RMB01-821DD (1-216-649-91)	METAL GLAZE 820 0.5% 1/10W
Q419	FQTD0004-01 (8-729-420-29)	TRANSISTOR 2SD1819A-QRS-TX	R454	RMB01-821DD (1-216-649-91)	METAL GLAZE 820 0.5% 1/10W
----- RESISTOR -----					
R421	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W	R455	FRE005-392J (1-216-828-91)	METAL GLAZE 3.9K 5% 1/16W
R422	FRE005-272J (1-216-826-91)	METAL GLAZE 2.7K 5% 1/10W	R456	FRE005-123J (1-216-834-91)	METAL GLAZE 12K 5% 1/16W
R423	FRE005-102J (1-216-821-91)	METAL GLAZE 1K 5% 1/16W	R457	FRE005-222J (1-216-825-91)	METAL GLAZE 2.2K 5% 1/16W
R424	FRE005-102J (1-216-821-91)	METAL GLAZE 1K 5% 1/16W	R458	FRE005-681J (1-216-819-91)	METAL GLAZE 680 5% 1/16W
R425	FRE005-222J (1-216-825-91)	METAL GLAZE 2.2K 5% 1/16W	R459	FRE005-272J (1-216-826-91)	METAL GLAZE 2.7K 5% 1/10W
R426	FRE005-222J (1-216-825-91)	METAL GLAZE 2.2K 5% 1/16W	R460	FRE005-272J (1-216-826-91)	METAL GLAZE 2.7K 5% 1/10W
R430	FRE005-224J (1-216-849-91)	METAL GLAZE 220K 5% 1/16W	R461	FRE005-332J (1-216-827-91)	METAL GLAZE 3.3K 5% 1/16W
R431	FRE005-474J (1-216-853-91)	METAL GLAZE 470K 5% 1/16W	R462	FRE005-332J (1-216-827-91)	METAL GLAZE 3.3K 5% 1/16W
R432	FRE005-332J (1-216-827-91)	METAL GLAZE 3.3K 5% 1/16W	R463	FRE005-103J (1-216-833-91)	METAL GLAZE 10K 5% 1/16W
R433	FRE005-332J (1-216-827-91)	METAL GLAZE 3.3K 5% 1/16W	R464	FRE005-183J (1-216-836-91)	METAL GLAZE 18K 5% 1/16W
R434	FRE005-222J (1-216-825-91)	METAL GLAZE 2.2K 5% 1/16W	R465	FRE005-183J (1-216-836-91)	METAL GLAZE 18K 5% 1/16W
R435	FRE005-103J (1-216-833-91)	METAL GLAZE 10K 5% 1/16W	R466	FRE005-153J (1-216-835-91)	METAL GLAZE 15K 5% 1/16W
R436	FRE005-273J (1-216-838-91)	METAL GLAZE 27K 5% 1/16W	R467	FRE005-822J (1-216-832-91)	METAL GLAZE 8.2K 5% 1/16W
			R468	FRE005-102J (1-216-821-91)	METAL GLAZE 1K 5% 1/16W
			R469	FRE005-821J (1-216-820-91)	METAL GLAZE 820 5% 1/16W
			R470	FRE005-271J (1-216-814-91)	METAL GLAZE 270 5% 1/16W
			R471	FRE005-121J (1-216-810-91)	METAL GLAZE 120 5% 1/16W
			R472	FRE005-122J (1-216-822-91)	METAL GLAZE 1.2K 5% 1/16W
			R473	FRE001-681J (1-216-045-91)	METAL GLAZE 680 5% 1/10W

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF60WIDE PARTS LIST

AU-95P

CD-66P

DD-30

Ref.No.	Part No.	Description			
R474	FRE001-471J (1-216-041-91)	METAL GLAZE	470	5%	1/10W
R475	FRE005-471J (1-216-817-91)	METAL GLAZE	470	5%	1/16W
----- VARIABLE RESISTOR -----					
RV401	FRU009-103N (1-238-856-21)	RES. ADJ	10K	B	
RV402	FRU009-223N (1-238-857-21)	RES. ADJ	22K		

	KA7071-445A	CD-66P BOARD, COMPLETE			

	K1638-76521	CD-66P BOARD			
----- CAPACITOR -----					
C901	FCB06-102KH (1-163-009-91)	CERAMIC CHIP	1000PF	B 10%	50V
C902	CTD09-475MA (1-135-155-91)	TANTAL. CHIP	4.7UF	B2 20%	16V
C903	FCT06-106ME (1-135-159-91)	TANTAL. CHIP	10MF	20%	20V
C904	CBF01-103KC (1-162-970-91)	CERAMIC CHIP	0.01MF	B K	25V
C905	CTB10-336MA (1-135-162-91)	TANTAL. CHIP	33MF	C 20%	6.3V
C906	FCT06-155MC (1-135-095-91)	TANTAL. CHIP	1.5MF	20%	10V
----- COIL -----					
L901	LA007-101KA (1-412-032-22)	INDUCTOR CHIP	100UH	10%	Q 20
----- TRANSISTOR -----					
Q901	FQTK0009-08 (8-766-000-05)	TRANSISTOR	2SK300-3/4-T7		
----- RESISTOR -----					
R901	FRE005-101J (1-216-809-91)	METAL GLAZE	100	5%	1/16W
R902	FRE005-392J (1-216-828-91)	METAL GLAZE	3.9K	5%	1/16W
R903	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W
R904	FRE005-153J (1-216-835-91)	METAL GLAZE	15K	5%	1/16W
R905	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K	5%	1/16W
----- BOARD -----					
W901	J1635-76111	FP-333 BOARD	(1-635-761-11)		

Ref.No.	Part No.	Description			

	A-7062-288A	DD-30 BOARD, COMPLETE (A-7062-288-A)			

Z001	K1634-01213 (1-634-012-13)	DD-30 BOARD			
Z002	K1702-33513 (1-702-335-13)	B-38 BOARD			
	K3740-53612 (3-740-536-12)	SHIELD CASE, BODY, DD-30			
	K3740-53702 (3-740-537-02)	SHIELD CASE, COVER, DD-30			
	K3740-53901 (3-740-539-01)	SHIELD CASE, ISOLATION, L, DD-30			
	K3747-71102 (3-747-711-02)	SHIELD CASE, ISOLATION, BOTTOM, DD-30			
----- CAPACITOR -----					
C101	FCA30-106MD (1-124-233-61)	ELECT (LEAD)	10MF	20%	16V
C102	FCA35-685MD (1-127-556-81)	ELECT (LEAD)	6.8MF	20%	16V
C103	FCA35-106MC (1-127-558-81)	ELECT (LEAD)	10MF	20%	10V
C104	FCA35-475MC (1-127-551-81)	ELECT (LEAD)	4.7MF	20%	10V
C105	FCA35-155MF (1-127-540-81)	ELECT (LEAD)	1.5MF	20%	25V
C106	FCA30-475MG (1-124-245-61)	ELECT (LEAD)	4.7MF	20%	35V
C107	FCA35-335MD (1-127-550-81)	ELECT (LEAD)	3.3MF	20%	16V
C108	FCA30-475MG (1-124-245-61)	ELECT (LEAD)	4.7MF	20%	35V
C109	FCA30-335MF (1-124-237-61)	ELECT (LEAD)	3.3MF	20%	25V
C110	FCA30-106MD (1-124-233-61)	ELECT (LEAD)	10MF	20%	16V
C111	FCA30-106MD (1-124-233-61)	ELECT (LEAD)	10MF	20%	16V
C112	FCA34-336MC (1-126-805-71)	ELECT (LEAD)	33MF	20%	10V
C113	FCB06-473KF (1-163-809-91)	CERAMIC CHIP	0.047MF	B K	25V
C114	FCC01-220JH (1-162-919-91)	CERAMIC CHIP	22PF	CH 5%	50V
C115	FCC01-220JH (1-162-919-91)	CERAMIC CHIP	22PF	CH 5%	50V
C116	FCA35-106MC (1-127-558-81)	ELECT (LEAD)	10MF	20%	10V
C117	FCA35-106MC (1-127-558-81)	ELECT (LEAD)	10MF	20%	10V
C118	FCA30-106MD (1-124-233-61)	ELECT (LEAD)	10MF	20%	16V
C119	FCA35-685MD (1-127-556-81)	ELECT (LEAD)	6.8MF	20%	16V
C120	FCA35-106MC (1-127-558-81)	ELECT (LEAD)	10MF	20%	10V
C121	FCA35-106MC (1-127-558-81)	ELECT (LEAD)	10MF	20%	10V
C122	FCA30-335MF (1-124-237-61)	ELECT (LEAD)	3.3MF	20%	25V
C123	CBH01-102KC (1-162-964-91)	CERAMIC CHIP	1000PF	B K	50V
C124	CBH01-102KC (1-162-964-91)	CERAMIC CHIP	1000PF	B K	50V
C125	FCB06-472KH (1-163-017-91)	CERAMIC CHIP	4700P	B 10%	50V

When indicating parts by reference number, please include the board name.

DD-30

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C126	FCB06-102KH (1-163-009-91)	CERAMIC CHIP 1000PF B 10% 50V	L107	LA007-331KA (1-412-034-22)	INDUCTOR CHIP 330UH 10% Q 20
C127	FCC01-181JH (1-164-218-91)	CERAMIC CHIP 180PF CH 50V	L108	LA007-331KA (1-412-034-22)	INDUCTOR CHIP 330UH 10% Q 20
C128	CBF01-104KD (1-164-633-91)	CERAMIC CHIP 0.1MF B K 25V	L109	LA007-331KA (1-412-034-22)	INDUCTOR CHIP 330UH 10% Q 20
C129	CBH01-472KC (1-162-968-91)	CERAMIC CHIP 4700PF B K 50V	L110	FLA014-100M (1-424-104-21)	INDUCTOR CHIP 10UH 20%
C130	CBH01-103KD (1-163-021-91)	CERAMIC CHIP 0.01MF B K 50V	L111	FLA015-470M (1-424-106-32)	INDUCTOR CHIP 47MH 15%
C131	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V	L112	FLA015-220M (1-424-105-32)	INDUCTOR CHIP 22UH 15%
C132	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	L113	FLA014-100M (1-424-104-21)	INDUCTOR CHIP 10UH 20%
C136	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V	L114	FLA015-220M (1-424-105-32)	INDUCTOR CHIP 22UH 15%
C137	FCB06-332KH (1-163-015-91)	CERAMIC CHIP 3300P B 10% 50V	L115	LA007-220KA (1-412-030-22)	INDUCTOR CHIP 22UH 10% Q 20
C139	FCB06-332KH (1-163-015-91)	CERAMIC CHIP 3300P B 10% 50V	L116	LA007-2R2MA (1-412-027-22)	INDUCTOR CHIP 2.2UH 20% Q 20
C140	CBF01-104KD (1-164-633-91)	CERAMIC CHIP 0.1MF B K 25V	L117	K1410-33721 (1-410-337-21)	INDUCTOR CHIP 1UH 20% Q 5
C141	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	----- TRANSISTOR -----		
C142	FCB05-223KF (1-164-227-91)	CERAMIC CHIP 0.022MF B K 25V	Q101	FQW0025-01 (8-729-421-91)	TRANSISTOR XN4113 TX
C143	FCB06-471KF (1-163-005-91)	CERAMIC CHIP 470PF B 10% 50V	Q102	FQTB0001-04 (8-729-805-36)	TRANSISTOR 2SB1121-T-TD
----- CONNECTOR -----			Q103	FQTK0008-01 (8-729-822-83)	TRANSISTOR 2SK1311-TD
CN101	FCA04-05101 (1-566-184-11)	CONNECTOR 5P (WHITE)	Q104	FQTC0013-06 (8-729-142-15)	TRANSISTOR 2SC4175-T1B3B4
CN102	FGC012-0171 (1-569-437-11)	CONNECTOR 17P BOARD TO BOARD	Q105	FQTB0001-04 (8-729-805-36)	TRANSISTOR 2SB1121-T-TD
CN103	FGC012-0081 (1-569-438-11)	CONNECTOR 8P BOARD TO BOARD	Q106	FQTB0001-04 (8-729-805-36)	TRANSISTOR 2SB1121-T-TD
----- DIODE -----			Q107	FQTB0001-04 (8-729-805-36)	TRANSISTOR 2SB1121-T-TD
D101	FQDY0010-01 (8-719-980-39)	DIODE SB07-03C-TB	Q108	QTP20-130QA (8-729-403-36)	TRANSISTOR UN5113-TX
D102	FQDY0011-01 (8-719-938-76)	DIODE SB05-05CP TB	----- RESISTOR -----		
D103	QDY20-080RA (8-719-951-24)	DIODE IMN10 T108	R101	FRE001-221J (1-216-033-91)	METAL GLAZE 220 5% 1/10W
D104	FQDY0010-01 (8-719-980-39)	DIODE SB07-03C-TB	R102	FRE001-560J (1-216-019-91)	METAL GLAZE 56 5% 1/10W
D105	FQDY0012-02 (8-719-981-64)	DIODE FC805-TL	R103	FRE001-220J (1-216-009-91)	METAL GLAZE 22 5% 1/10W
----- IC -----			R104	FRE005-392J (1-216-828-91)	METAL GLAZE 3.9K 5% 1/16W
IC101	FQHY0016-00 (8-759-500-42)	IC MB3783PFV-G-BND-HT (VOLTAGE CONTROLOR)	R105	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
IC102	FQHA0125-00 (8-759-999-13)	IC LM311DR-E1 (OP AMP)	R106	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
----- COIL -----			R107	FRE002-222J (1-216-825-91)	METAL GLAZE 2.2K 5% 1/16W
L101	K1410-33721 (1-410-337-21)	INDUCTOR CHIP 1UH 20% Q 5	R108	FRE005-183J (1-216-836-91)	METAL GLAZE 18K 5% 1/16W
L102	K1410-33721 (1-410-337-21)	INDUCTOR CHIP 1UH 20% Q 5	R109	FRE001-681J (1-216-045-91)	METAL GLAZE 680 5% 1/10W
L103	K1410-33721 (1-410-337-21)	INDUCTOR CHIP 1UH 20% Q 5	R110	FRE001-332J (1-216-061-91)	METAL GLAZE 3.3K 5% 1/10W
L104	FLA014-100M (1-424-104-21)	INDUCTOR CHIP 10UH 20%	R111	FRE005-272J (1-216-826-91)	METAL GLAZE 2.7K 5% 1/10W
L105	FLA015-220M (1-424-105-32)	INDUCTOR CHIP 22UH 15%	R112	FRE005-102J (1-216-821-91)	METAL GLAZE 1K 5% 1/16W
L106	FLA014-100M (1-424-104-21)	INDUCTOR CHIP 10UH 20%	R113	FRE005-392J (1-216-828-91)	METAL GLAZE 3.9K 5% 1/16W

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF60WIDE PARTS LIST

DD-30 EL-13P FP-182

Ref.No.	Part No.	Description			
R114	FRE001-222J (1-216-057-91)	METAL GLAZE	2. 2K	5%	1/10W
R115	FRE005-682J (1-216-831-91)	METAL GLAZE	6. 8K	5%	1/16W
R116	FRE005-272J (1-216-826-91)	METAL GLAZE	2. 7K	5%	1/10W
R117	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R118	FRE005-392J (1-216-828-91)	METAL GLAZE	3. 9K	5%	1/16W
R119	FRE005-152J (1-216-823-91)	METAL GLAZE	1. 5K	5%	1/16W
R120	FRE001-222J (1-216-057-91)	METAL GLAZE	2. 2K	5%	1/10W
R121	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W
R122	FRE001-223J (1-216-081-91)	METAL GLAZE	22K	5%	1/10W
R123	FRE005-563J (1-216-842-91)	METAL GLAZE	56K	5%	1/16W
R124	FRE002-222J (1-216-825-91)	METAL GLAZE	2. 2K	5%	1/16W
R126	FRE005-273J (1-216-838-91)	METAL GLAZE	27K	5%	1/16W
R127	FRE005-393J (1-216-840-91)	METAL GLAZE	39K	5%	1/16W
R128	FRE002-472J (1-216-829-91)	METAL GLAZE	4. 7K	5%	1/16W
R129	FRE001-560J (1-216-019-91)	METAL GLAZE	56	5%	1/10W
R130	FRE001-820J (1-216-023-91)	METAL GLAZE	82	5%	1/10W
R131	FRE001-101J (1-216-025-91)	METAL GLAZE	100	5%	1/10W
R132	FRE005-273J (1-216-838-91)	METAL GLAZE	27K	5%	1/16W
R133	FRE002-472J (1-216-829-91)	METAL GLAZE	4. 7K	5%	1/16W
R134	FRE005-224J (1-216-849-91)	METAL GLAZE	220K	5%	1/16W
R135	FRE001-164K (1-216-102-91)	METAL GLAZE	160K	5%	1/10W
R136	FRE001-154J (1-216-101-91)	METAL GLAZE	150K	5%	1/10W
R137	FRE005-562J (1-216-830-91)	METAL GLAZE	5. 6K	5%	1/16W
R138	FRE005-392J (1-216-828-91)	METAL GLAZE	3. 9K	5%	1/16W
R139	FRE005-224J (1-216-849-91)	METAL GLAZE	220K	5%	1/16W
R140	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W
----- VARIABLE RESISTOR -----					
RV101	FRU008-473N (1-230-526-21)	RES. ADJ	47K B		
RV102	FRU006-102N (1-238-087-31)	RES. ADJ	1K B	25%	3MM
RV103	FRU006-102N (1-238-087-31)	RES. ADJ	1K B	25%	3MM
RV104	FRU006-102N (1-238-087-31)	RES. ADJ	1K B	25%	3MM
RV105	FRU006-472N (1-238-089-31)	RES. ADJ	4. 7K B	25%	3MM
----- TRANSFORMER -----					
T101	FLYT0004-00 (1-449-974-11)	TRANSFORMER, CONVERTER	98-1029-01		

Ref.No.	Part No.	Description			

	KA7071-446A	EL-13P BOARD, COMPLETE			

	K1638-76921	EL-13P BOARD			
	K3747-70102	PLATE, EL GROUND			
	(3-747-701-02)				
	K3747-71201	HOLDER, EL			
	(3-747-712-01)				
----- CAPACITOR -----					
C942	CBH01-102KC (1-162-964-91)	CERAMIC CHIP	1000PF B K		50V
C943	CBH01-102KC (1-162-964-91)	CERAMIC CHIP	1000PF B K		50V
----- CONNECTOR -----					
CN942	FGA005-0034 (1-565-875-11)	CONNECTOR	3P		
----- DIODE -----					
D941	FQDZ0001-00 (8-719-420-15)	DIODE, ZENER	MA8082-M(TX)		
D942	FQDZ0026-03 (8-719-106-74)	DIODE, ZENER	RD12M-T1B-B2		
D943	FQDW0001-00 (8-719-404-47)	DIODE	MA110-TX		
----- JACK -----					
J902	FZ00163-100 (1-565-276-11)	JACK, ULTRA SMALL	1P		
----- COIL -----					
L941	LA003-010MF (1-410-369-21)	INDUCTOR CHIP	1. 0UH		20%
L942	LA003-010MF (1-410-369-21)	INDUCTOR CHIP	1. 0UH		20%
L943	LA003-010MF (1-410-369-21)	INDUCTOR CHIP	1. 0UH		20%

W502	A-7070-881A	FP-182 BOARD, COMPLETE			(A-7070-881-A)

	FZ00045-100 (1-630-591-11)	FP-182 FLEXIBLE BOARD			
----- CONNECTOR -----					
CN502	FGD001-0151 (1-565-662-11)	CONNECTOR	15P		

When indicating parts by reference number, please include the board name.

FP-184**FP-330****FP-331****FP-362****LD-43**

Ref.No.	Part No.	Description

W604	1-630-59211	FP-184 FLEXIBLE BOARD (1-630-592-11)

----- CONNECTOR -----		
CN604	K1568-33411	CONNECTOR 16P BOARD TO BOARD (1-568-334-11)

W605	A-7071-200A	FP-330 BOARD, COMPLETE (A-7071-200-A)

	K1635-75911	FP-330 BOARD (1-635-759-11)
----- CONNECTOR -----		
CN605	FGC001-0171	CONNECTOR 17P BOARD TO BOARD (1-568-329-11)

W801	A-7071-199A	FP-331 BOARD, COMPLETE (A-7071-199-A)

	FZ00208-100	FP-331 BOARD (1-635-760-11)
----- CONNECTOR -----		
	FGC001-0081	CONNECTOR 8P BOARD TO BOARD (1-568-327-11)

W303	A-7071-175A	FP-362 BOARD, COMPLETE (A-7071-175-A)

	K1635-39612	FP-362 FLEXIBLE BOARD (1-635-396-12)
----- CONNECTOR -----		
	FGC001-0071	CONNECTOR 7P BOARD TO BOARD (1-568-326-11)

	KA7062-828A	LD-43 BOARD, COMPLETE

	J1638-76411	LD-43 BOARD

Ref.No.	Part No.	Description
----- CAPACITOR -----		
C701	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C702	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C703	CBH01-472KC (1-162-968-91)	CERAMIC CHIP 4700PF B K 50V
C706	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C707	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20% 6.3V
C708	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C709	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C710	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C711	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C713	CBF01-473KE (1-163-080-91)	CERAMIC CHIP 0.047MF B K 25V
C714	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C715	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C716	CFD01-474ZE (1-162-637-91)	CERAMIC CHIP 0.47MF F Z 16V
C717	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20% 6.3V
C718	K1131-39521	TANTAL. (LEAD) 100MF 10% 3.15V
----- CONNECTOR -----		
CN701	FGC028-0201 (1-568-336-51)	CONNECTOR 20P BOARD TO BOARD
CN702	FGB001-0081 (1-566-540-41)	CONNECTOR 8P
CN703	FGA007-0021 (1-565-541-11)	CONNECTOR 2P
CN704	FGA007-0041 (1-565-543-11)	CONNECTOR 4P
CN705	FGA007-0031 (1-565-542-11)	CONNECTOR 3P
CN706	FGA007-0022 (1-565-541-21)	CONNECTOR 2P (RED)
CN708	K1566-75811	CONNECTOR 3P FOR BOARD (1-566-758-11)
----- DIODE -----		
D701	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX
D704	FQDW0012-01	DIODE RB717F-T106
D705	FQDW0012-01	DIODE RB717F-T106
----- IC -----		
IC701	FQHA0084-00 (8-759-037-21)	IC MPC1737MR
IC702	FQHA0129-00	IC LM358DR-E1 (AD REF) (8-759-999-11)
IC703	FQHA0007-00 (8-759-981-83)	IC RC3414M-T1
IC705	FQHD0067-00 (8-759-234-92)	IC TC4S66F TE85R

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF60WIDE PARTS LIST

LD-43 MA-73P

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
----- TRANSISTOR -----					
Q701	QTN20-230QA (8-729-905-16)	TRANSISTOR DTC144WU-T106	R734	FRE005-105J (1-216-857-91)	METAL GLAZE 1M 5% 1/16W
Q702	FQTW0001-00 (8-729-920-46)	TRANSISTOR IMT1US-T110	R735	FRE005-102J (1-216-821-91)	METAL GLAZE 1K 5% 1/16W
Q703	FQTN0003-00 (8-729-905-62)	TRANSISTOR DTC124EU-T106	R736	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
Q704	FQTA0011-05 (8-729-620-10)	TRANSISTOR 2SA1602TP-1EF	R737	FRE005-333J (1-216-839-91)	METAL GLAZE 33K 5% 1/16W
Q706	FQTB0001-00 (8-729-820-88)	TRANSISTOR 2SB1121-ST-TD	R738	FRE005-683J (1-216-843-91)	METAL GLAZE 68K 5% 1/16W
Q707	FQTC0012-07 (8-729-140-67)	TRANSISTOR 2SC4177-T1-L5L6	R740	FRE005-103J (1-216-833-91)	METAL GLAZE 10K 5% 1/16W
Q710	FQTW0021-01 (8-729-428-46)	TRANSISTOR XP6213-TX	R741	FRE005-472J (1-216-829-91)	METAL GLAZE 4.7K 5% 1/16W
Q711	FQTW0016-01 (8-729-427-94)	TRANSISTOR XP6113-TX	R742	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
Q712	FQTW0021-01 (8-729-428-46)	TRANSISTOR XP6213-TX	R743	FRE005-472J (1-216-829-91)	METAL GLAZE 4.7K 5% 1/16W
----- RESISTOR -----					
R701	FRE005-223J (1-216-837-91)	METAL GLAZE 22K 5% 1/16W	R744	FRE005-223J (1-216-837-91)	METAL GLAZE 22K 5% 1/16W
R702	FRE005-183J (1-216-836-91)	METAL GLAZE 18K 5% 1/16W	R745	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
R703	FRE005-563J (1-216-842-91)	METAL GLAZE 56K 5% 1/16W	R746	FRE005-470J (1-216-805-91)	METAL GLAZE 47 5% 1/16W
R705	FRE005-471J (1-216-817-91)	METAL GLAZE 470 5% 1/16W	R747	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
R707	FRE005-103J (1-216-833-91)	METAL GLAZE 10K 5% 1/16W	----- NETWORK RESISTOR -----		
R708	FRE005-183J (1-216-836-91)	METAL GLAZE 18K 5% 1/16W	RB702	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
R709	FRE005-563J (1-216-842-91)	METAL GLAZE 56K 5% 1/16W	----- VARIABLE RESISTOR -----		
R710	FRE005-102J (1-216-821-91)	METAL GLAZE 1K 5% 1/16W	RV701	FRU006-224N (1-238-094-31)	RES. ADJ CERMET 220K B
R712	FRE005-105J (1-216-857-91)	METAL GLAZE 1M 5% 1/16W	*****		
R713	FRE004-000J (1-216-296-91)	METAL GLAZE 0 5% 1/8W	A-7071-260A MA-73P BOARD, COMPLETE (A-7071-260-A)		
R714	FRE005-222J (1-216-825-91)	METAL GLAZE 2.2K 5% 1/16W	*****		
R716	FRE001-5R6J (1-216-309-91)	METAL GLAZE 47K 5% 1/16W	K1635-75621 MA-73P BOARD (1-635-756-21)		
R717	FRE005-3R3J (1-216-791-91)	METAL GLAZE 3.3 5% 1/16W	----- CAPACITOR -----		
R718	FRE005-3R3J (1-216-791-91)	METAL GLAZE 3.3 5% 1/16W	C401	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
R719	FRE005-103J (1-216-833-91)	METAL GLAZE 10K 5% 1/16W	C402	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V
R720	FRE005-392J (1-216-828-91)	METAL GLAZE 3.9K 5% 1/16W	C403	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V
R723	FRE005-222J (1-216-825-91)	METAL GLAZE 2.2K 5% 1/16W	C404	CSH01-101JC (1-162-953-91)	CERAMIC CHIP 100PF SL J 50V
R725	FRE005-472J (1-216-829-91)	METAL GLAZE 4.7K 5% 1/16W	C406	CBF01-393KD (1-162-587-91)	CERAMIC CHIP 0.039MF B K 25V
R726	FRE005-681J (1-216-819-91)	METAL GLAZE 680 5% 1/16W	C407	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
R727	FRE005-683J (1-216-843-91)	METAL GLAZE 68K 5% 1/16W	C408	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
R730	FRE005-103J (1-216-833-91)	METAL GLAZE 10K 5% 1/16W	C409	FCA07-106MC (1-124-967-41)	ELECT (NON-POLE) 10MF 20% 10V
R731	FRE005-683J (1-216-843-91)	METAL GLAZE 68K 5% 1/16W	C410	CSH01-101JC (1-162-953-91)	CERAMIC CHIP 100PF SL J 50V
R732	FRE005-153J (1-216-835-91)	METAL GLAZE 15K 5% 1/16W	C411	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20% 6.3V
R733	FRE005-562J (1-216-830-91)	METAL GLAZE 5.6K 5% 1/16W			

When indicating parts by reference number, please include the board name.

MA-73P

PD-18P

Ref.No.	Part No.	Description
C412	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20% 6.3V
C413	FCA01-470MB (1-126-205-21)	ELECT CHIP 47MF 20% 6.3V
C414	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C415	CSH01-221JC (1-162-957-91)	CERAMIC CHIP 220PF SL J 50V
C416	FCS03-100DH (1-162-941-91)	CERAMIC CHIP 10PF SL D 50V
----- CONNECTOR -----		
CN404	FGA007-0041 (1-565-543-11)	CONNECTOR 4P
CN405	FGA002-0031 (1-566-758-11)	CONNECTOR 3P, 1.5MM STRAIGHT
----- DIODE -----		
D401	FQDZ0001-00 (8-719-420-15)	DIODE, ZENER MA8082-M(TX)
----- JACK -----		
J904	FGY001-0011 (1-568-027-12)	CONNECTOR 1P
----- TRANSISTOR -----		
Q402	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q403	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q404	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q405	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q481	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
----- RESISTOR -----		
R401	FRE005-152J (1-216-823-91)	METAL GLAZE 1.5K 5% 1/16W
R402	FRE005-123J (1-216-834-91)	METAL GLAZE 12K 5% 1/16W
R403	FRE005-683J (1-216-843-91)	METAL GLAZE 68K 5% 1/16W
R404	FRE005-274J (1-216-850-91)	METAL GLAZE 270K 5% 1/16W
R405	FRE005-822J (1-216-832-91)	METAL GLAZE 8.2K 5% 1/16W
R406	FRE005-682J (1-216-831-91)	METAL GLAZE 6.8K 5% 1/16W
R407	FRE005-183J (1-216-836-91)	METAL GLAZE 18K 5% 1/16W
R408	FRE005-682J (1-216-831-91)	METAL GLAZE 6.8K 5% 1/16W
R409	FRE005-183J (1-216-836-91)	METAL GLAZE 18K 5% 1/16W
R410	FRE005-121J (1-216-810-91)	METAL GLAZE 120 5% 1/16W
R411	FRE005-472J (1-216-829-91)	METAL GLAZE 4.7K 5% 1/16W
R412	FRE005-183J (1-216-836-91)	METAL GLAZE 18K 5% 1/16W
R413	FRE005-102J (1-216-821-91)	METAL GLAZE 1K 5% 1/16W
R414	FRE005-392J (1-216-828-91)	METAL GLAZE 3.9K 5% 1/16W
R415	FRE005-103J (1-216-833-91)	METAL GLAZE 10K 5% 1/16W

Ref.No.	Part No.	Description
R416	FRE005-391J (1-216-816-91)	METAL GLAZE 390 5% 1/16W
R417	FRE005-392J (1-216-828-91)	METAL GLAZE 3.9K 5% 1/16W
R418	FRE003-000J (1-216-295-91)	METAL GLAZE 0 5% 1/10W
R483	FRE005-000J (1-216-864-91)	METAL GLAZE 0 5% 1/16W
R484	FRE004-000J (1-216-296-91)	METAL GLAZE 0 5% 1/8W
R486	FRE005-274J (1-216-850-91)	METAL GLAZE 270K 5% 1/16W
R487	FRE003-000J (1-216-295-91)	METAL GLAZE 0 5% 1/10W

A-7061-855A PD-18P BOARD, COMPLETE
(A-7061-855-A)

K1630-59711 PD-18P BOARD
(1-630-597-11)

----- CAPACITOR -----

C201	FCS02-030CH (1-163-086-91)	CERAMIC CHIP 3PF SL 0.25P 50V
C202	CBH01-103KD (1-163-021-91)	CERAMIC CHIP 0.01MF B K 50V
C203	FCF08-223FH (1-163-033-91)	CERAMIC CHIP 0.022MF F Z 50V
C204	CBH01-103KD (1-163-021-91)	CERAMIC CHIP 0.01MF B K 50V
C205	CBH01-103KD (1-163-021-91)	CERAMIC CHIP 0.01MF B K 50V
C206	CSH01-391JD (1-163-131-91)	CERAMIC CHIP 390PF SL J 50V
C207	CBH01-103KD (1-163-021-91)	CERAMIC CHIP 0.01MF B K 50V
C208	CFF01-104ZD (1-163-038-91)	CERAMIC CHIP 0.1MF F Z 25V
C209	FCS07-470JH (1-163-109-91)	CERAMIC CHIP 47PF SL 5% 50V
C210	FCB06-332KH (1-163-015-91)	CERAMIC CHIP 3300P B 10% 50V
C211	CFF01-104ZD (1-163-038-91)	CERAMIC CHIP 0.1MF F Z 25V
C212	CBH01-103KD (1-163-021-91)	CERAMIC CHIP 0.01MF B K 50V
C213	CFF01-104ZD (1-163-038-91)	CERAMIC CHIP 0.1MF F Z 25V
C214	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V

----- DIODE -----

D201	QDY10-010RA (8-719-104-22)	DIODE 1SS123-T1
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----- FILTER -----

FL201	K1236-18842 (1-236-188-42)	FILTER, BAND PASS
FL202	K1415-66411 (1-415-664-11)	DELAY LINE, 2H (GLASS)

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF60WIDE PARTS LIST

PD-18P

SW-177

SW-178

Ref.No.	Part No.	Description
----- COIL -----		
L201	LA003-150KF (1-410-383-21)	INDUCTOR CHIP 15UH 10% Q 30
L202	LA003-220KF (1-410-385-21)	INDUCTOR CHIP 22UH 10% Q 30
L203	LA007-100KA (1-412-029-22)	INDUCTOR CHIP 10UH 10% Q 20
----- TRANSISTOR -----		
Q201	FQTC0021-03 (8-729-102-62)	TRANSISTOR 2SC1623-T1 L6
Q202	FQTC0021-03 (8-729-102-62)	TRANSISTOR 2SC1623-T1 L6
Q203	FQTC0021-03 (8-729-102-62)	TRANSISTOR 2SC1623-T1 L6
Q204	FQTC0021-03 (8-729-102-62)	TRANSISTOR 2SC1623-T1 L6
Q205	FQTC0021-03 (8-729-102-62)	TRANSISTOR 2SC1623-T1 L6
Q206	FQTC0021-03 (8-729-102-62)	TRANSISTOR 2SC1623-T1 L6
Q207	FQTC0021-03 (8-729-102-62)	TRANSISTOR 2SC1623-T1 L6
Q208	FQTC0021-03 (8-729-102-62)	TRANSISTOR 2SC1623-T1 L6
----- RESISTOR -----		
R201	FRE001-102J (1-216-049-91)	METAL GLAZE 1.0K 5% 1/10W
R202	FRE001-102J (1-216-049-91)	METAL GLAZE 1.0K 5% 1/10W
R203	FRE001-153J (1-216-077-91)	METAL GLAZE 15K 5% 1/10W
R204	FRE001-471J (1-216-041-91)	METAL GLAZE 470 5% 1/10W
R205	FRE001-221J (1-216-033-91)	METAL GLAZE 220 5% 1/10W
R206	FRE001-102J (1-216-049-91)	METAL GLAZE 1.0K 5% 1/10W
R207	FRE001-222J (1-216-057-91)	METAL GLAZE 2.2K 5% 1/10W
R208	FRE001-103J (1-216-073-91)	METAL GLAZE 10K 5% 1/10W
R209	FRE001-472J (1-216-065-91)	METAL GLAZE 4.7K 5% 1/10W
R210	FRE001-391J (1-216-039-91)	METAL GLAZE 390 5% 1/10W
R211	FRE001-821J (1-216-047-91)	METAL GLAZE 82 5% 1/10W
R212	FRE001-272J (1-216-059-91)	METAL GLAZE 2.7K 5% 1/10W
R213	FRE001-471J (1-216-041-91)	METAL GLAZE 470 5% 1/10W
R214	FRE001-152J (1-216-053-91)	METAL GLAZE 1.5K 5% 1/10W
R215	FRE001-333J (1-216-085-91)	METAL GLAZE 33K 5% 1/10W
R216	FRE001-223J (1-216-081-91)	METAL GLAZE 22K 5% 1/10W
R217	FRE001-471J (1-216-041-91)	METAL GLAZE 470 5% 1/10W
R218	FRE001-561J (1-216-043-91)	METAL GLAZE 560 5% 1/10W
R219	FRE001-121J (1-216-027-91)	METAL GLAZE 120 5% 1/10W
R220	FRE001-332J (1-216-061-91)	METAL GLAZE 3.3K 5% 1/10W

Ref.No.	Part No.	Description
R221	FRE001-103J (1-216-073-91)	METAL GLAZE 10K 5% 1/10W
R222	FRE001-821J (1-216-047-91)	METAL GLAZE 82 5% 1/10W
R223	FRE001-331J (1-216-037-91)	METAL GLAZE 330 5% 1/10W
R224	FRE001-821J (1-216-047-91)	METAL GLAZE 82 5% 1/10W
R225	FRE001-331J (1-216-037-91)	METAL GLAZE 330 5% 1/10W
R226	FRE001-333J (1-216-085-91)	METAL GLAZE 33K 5% 1/10W
R227	FRE001-153J (1-216-077-91)	METAL GLAZE 15K 5% 1/10W
R228	FRE001-472J (1-216-065-91)	METAL GLAZE 4.7K 5% 1/10W
R229	FRE001-183J (1-216-079-91)	METAL GLAZE 18K 5% 1/10W
----- VARIABLE RESISTOR -----		
RV201	FRU006-472N (1-238-089-31)	RES. ADJ 4.7K B 25% 3MM
----- MISCELLANEOUS -----		
W206	K1944-54511 (1-944-545-11)	HARNESS (VP-22)

	KA7052-729A	SW-177 BOARD, COMPLETE

	J1638-77311	SW-177 BOARD
----- CONNECTOR -----		
CN760	FGA037-0021 (1-565-149-11)	CONNECTOR 2P, 1.25MM ANGLE (WHITE)
----- SWITCH -----		
S770	K1571-68411 (1-571-684-11)	SWITCH, TACTILE 1-1-1

	KA7052-727A	SW-178 BOARD, COMPLETE

	J1638-77411	SW-178 BOARD
----- CONNECTOR -----		
CN756	FGA005-0021 (1-565-874-11)	CONNECTOR 2P
CN762	FGA036-0021 (1-565-135-11)	CONNECTOR 2P, 1.25MM STRAIGHT (WHITE)
CN763	FGA036-0022	CONNECTOR 2P, 1.25MM ANGLE (RED)
----- SWITCH -----		
S762	K1571-68411 (1-571-684-11)	SWITCH, TACTILE 1-1-1

When indicating parts by reference number, please include the board name.

TI-37P

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description

	KA7062-832A	TI-37P BOARD, COMPLETE			

Z001	K1638-76721	TI-37P BOARD			
	----- CAPACITOR -----				
C801	FCF07-104ZF	CERAMIC CHIP 0.1MF F Z 25V	L801	LA003-4R7MF	INDUCTOR CHIP 4.7UH 20% Q 30
	(1-164-156-91)			(1-410-377-21)	
C802	K1135-15781	TANTAL. CHIP 10MF 20% 6.3V	L802	LA003-180KF	INDUCTOR CHIP 18UH 10% Q 30
	(1-135-157-81)			(1-410-384-21)	
C803	CFD01-474ZE	CERAMIC CHIP 0.47MF F Z 16V	L803	LA003-560KF	INDUCTOR CHIP 56UH 10% Q30
	(1-162-637-91)			(1-410-390-21)	
C804	FCG06-2R0CH	CERAMIC CHIP 2.0PF CK 50V	L804	LA003-100KF	INDUCTOR CHIP 10UH 10% Q 30
	(1-162-907-91)			(1-410-381-21)	
C805	CBF01-103KC	CERAMIC CHIP 0.01MF B K 25V	L805	LA003-100KF	INDUCTOR CHIP 10UH 10% Q 30
	(1-162-970-91)			(1-410-381-21)	
	----- TRANSISTOR -----				
C807	CBF01-103KC	CERAMIC CHIP 0.01MF B K 25V	Q801	QTN20-190QA	TRANSISTOR DTC144EU T106
	(1-162-970-91)			(8-729-905-19)	
C808	CBH01-102KC	CERAMIC CHIP 1000PF B K 50V	Q802	FQTW0009-01	TRANSISTOR XN4210-TX
	(1-162-964-91)			(8-729-403-26)	
C810	K1135-15781	TANTAL. CHIP 10MF 20% 6.3V		----- RESISTOR -----	
	(1-135-157-81)		R801	FRE005-103J	METAL GLAZE 10K 5% 1/16W
C811	FCF07-104ZF	CERAMIC CHIP 0.1MF F Z 25V		(1-216-833-91)	
	(1-164-156-91)		R802	FRE005-103J	METAL GLAZE 10K 5% 1/16W
C812	CBF01-103KC	CERAMIC CHIP 0.01MF B K 25V		(1-216-833-91)	
	(1-162-970-91)		R804	FRE005-103J	METAL GLAZE 10K 5% 1/16W

C813	FCS03-470JH	CERAMIC CHIP 47PF SL J 50V		(1-216-833-91)	
	(1-162-949-91)		R805	FRE005-103J	METAL GLAZE 10K 5% 1/16W
C814	FCS03-470JH	CERAMIC CHIP 47PF SL J 50V		(1-216-833-91)	
	(1-162-949-91)		R806	FRE005-103J	METAL GLAZE 10K 5% 1/16W
C815	FCS03-470JH	CERAMIC CHIP 47PF SL J 50V		(1-216-833-91)	
	(1-162-949-91)		R809	FRE005-103J	METAL GLAZE 10K 5% 1/16W
C816	FCF07-104ZF	CERAMIC CHIP 0.1MF F Z 25V		(1-216-833-91)	
	(1-164-156-91)		R811	FRE005-103J	METAL GLAZE 10K 5% 1/16W
C817	FCC01-240JH	CERAMIC CHIP 24PF CH 5% 50V		(1-216-833-91)	
	(1-162-975-91)		R815	FRE005-103J	METAL GLAZE 10K 5% 1/16W
C819	CBF01-103KC	CERAMIC CHIP 0.01MF B K 25V		(1-216-833-91)	
	(1-162-970-91)		R816	FRE005-103J	METAL GLAZE 10K 5% 1/16W
	----- CONNECTOR -----				
CN801	K1568-35941	CONNECTOR 20P BOARD TO BOARD		(1-216-833-91)	
	(1-568-359-41)		R818	FRE005-223J	METAL GLAZE 22K 5% 1/16W
	----- TRIMMER -----				
CT801	FCY03-300RK	TRIMMER 30PF -0+50%		(1-216-837-91)	
	(1-141-424-61)		R819	FRE005-472J	METAL GLAZE 4.7K 5% 1/16W
CT802	FCY03-300RK	TRIMMER 30PF -0+50%		(1-216-829-91)	
	(1-141-424-61)		R820	FRE005-104J	METAL GLAZE 100K 5% 1/16W
	----- DIODE -----				
D801	FQDV0001-01	DIODE 1T33C-T8-01		(1-216-845-91)	
	(8-713-301-00)		R821	FRE005-104J	METAL GLAZE 100K 5% 1/16W
	----- IC -----				
IC801	FQHM0018-00	IC CXK5864BM-12LL-T5 (TITLE RAM)		(1-216-845-91)	
	(8-752-336-88)		R822	FRE005-103J	METAL GLAZE 10K 5% 1/16W
IC802	K8759-15179	IC UPD6145G-621-E1		(1-216-833-91)	
	(8-759-151-79)		R823	FRE005-222J	METAL GLAZE 2.2K 5% 1/16W
IC803	K8759-98354	IC MB87485		(1-216-825-91)	
	(8-759-983-54)		R826	FRE005-222J	METAL GLAZE 2.2K 5% 1/16W

				(1-216-825-91)	
			R827	FRE005-102J	METAL GLAZE 1K 5% 1/16W
				(1-216-821-91)	
			R828	FRE005-222J	METAL GLAZE 2.2K 5% 1/16W
				(1-216-825-91)	
			R829	FRE005-222J	METAL GLAZE 2.2K 5% 1/16W
				(1-216-825-91)	
			R830	FRE005-471J	METAL GLAZE 470 5% 1/16W
				(1-216-817-91)	
			R831	FRE005-471J	METAL GLAZE 470 5% 1/16W
				(1-216-817-91)	
			R832	FRE005-103J	METAL GLAZE 10K 5% 1/16W
				(1-216-833-91)	
			R833	FRE005-000J	METAL GLAZE 0 5% 1/16W
				(1-216-864-91)	

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF60WIDE PARTS LIST

TI-37P

VC-98P

Ref.No.	Part No.	Description
----- NETWORK RESISTOR -----		
RB801	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP 10K 5%
RB802	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP 10K 5%
RB804	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP 10K 5%

	KA7062-831A	VC-98P BOARD, COMPLETE

	K1638-76621	VC-98P BOARD
	K3940-26702	CASE, VC SHIELD (UPPER)
	(3-940-267-02)	
----- CAPACITOR -----		
C101	FCT06-685MB (1-135-211-91)	TANTAL. CHIP 6.8MF 20% 6.3V
C102	CTB10-336MA (1-135-162-91)	TANTAL. CHIP 33MF C 20% 6.3V
C103	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C104	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C105	CTB10-336MA (1-135-162-91)	TANTAL. CHIP 33MF C 20% 6.3V
C108	FCA33-476MA (1-126-208-21)	ELECT CHIP 47MF 20% 4V
C109	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20% 6.3V
C112	CCH01-050CC (1-162-910-91)	CERAMIC CHIP 5PF CH C 50V
C131	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C132	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C133	CBF01-104KD (1-164-633-91)	CERAMIC CHIP 0.1MF B K 25V
C134	CTG05-335MA (1-135-079-91)	TANTAL. CHIP 3.3MF C 20% 35V
C136	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C137	K1135-09191 (1-135-091-91)	TANTAL. CHIP 1MF 20% 16V
C138	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C141	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C142	CBF01-104KD (1-164-633-91)	CERAMIC CHIP 0.1MF B K 25V
C143	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C145	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C149	CTB02-225MA (1-135-099-91)	TANTAL. CHIP 2.2MF A 20% 6.3V
C151	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C152	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C153	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C154	CCH01-120JC (1-162-916-91)	CERAMIC CHIP 12PF CH J 50V
C156	CCH01-050CC (1-162-910-91)	CERAMIC CHIP 5PF CH C 50V

Ref.No.	Part No.	Description
C157	CCH01-050CC (1-162-910-91)	CERAMIC CHIP 5PF CH C 50V
C158	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C180	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C181	K1135-09191 (1-135-091-91)	TANTAL. CHIP 1MF 20% 16V
C182	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C183	FCS03-560JH (1-162-950-91)	CERAMIC CHIP 56PF SL 5% 50V
C184	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C185	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C186	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C187	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C188	FCS03-220JH (1-162-945-91)	CERAMIC CHIP 22PF SL J 50V
C189	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C191	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C192	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C196	FCC01-151JH (1-164-217-91)	CERAMIC CHIP 150PF CH J 50V
C197	FCC01-390JH (1-162-922-91)	CERAMIC CHIP 39PF CH 5% 50V
C198	CSH01-221JC (1-162-957-91)	CERAMIC CHIP 220PF SL J 50V
C199	FCC01-680JH (1-162-925-91)	CERAMIC CHIP 68PF CH 5% 50V
C200	FCC01-220JH (1-162-919-91)	CERAMIC CHIP 22PF CH 5% 50V
C201	FCS03-220JH (1-162-945-91)	CERAMIC CHIP 22PF SL J 50V
C202	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C203	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C204	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C205	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C206	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C210	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C211	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C212	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C213	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C214	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C215	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C216	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C217	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C219	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C220	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V

When indicating parts by reference number, please include the board name.

VC-98P

Ref.No.	Part No.	Description			Ref.No.	Part No.	Description		
C221	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z	16V		C281	CCH01-470JC (1-162-923-91)	CERAMIC CHIP 47PF CH J	50V	
C222	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z	16V		C282	FCC01-680JH (1-162-925-91)	CERAMIC CHIP 68PF CH 5%	50V	
C223	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z	16V		C283	CCH01-120JC (1-162-916-91)	CERAMIC CHIP 12PF CH J	50V	
C224	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K	25V		C301	FCS03-820JH (1-162-952-91)	CERAMIC CHIP 82PF SL J	50V	
C225	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z	16V		C304	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V	
C229	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C305	K1135-09191 (1-135-091-91)	TANTAL. CHIP 1MF 20%	16V	
C230	FCT06-685MB (1-135-211-91)	TANTAL. CHIP 6.8MF 20%	6.3V		C306	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V	
C232	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K	50V		C307	CCH01-100DC (1-162-915-91)	CERAMIC CHIP 10PF CH D	50V	
C233	FCS03-120JH (1-162-942-91)	CERAMIC CHIP 12PF SL J	50V		C308	FCF08-474ZF (1-164-005-91)	CERAMIC CHIP 0.47MF F Z	25V	
C234	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K	25V		C309	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V	
C235	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20%	6.3V		C310	FCF08-474ZF (1-164-005-91)	CERAMIC CHIP 0.47MF F Z	25V	
C236	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C311	CCH01-100DC (1-162-915-91)	CERAMIC CHIP 10PF CH D	50V	
C237	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C313	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K	50V	
C238	FCS02-120JH (1-163-253-91)	CERAMIC CHIP 120PF CH 5%	50V		C315	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V	
C239	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C316	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V	
C241	CSH01-101JC (1-162-953-91)	CERAMIC CHIP 100PF SL J	50V		C317	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K	25V	
C252	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20%	6.3V		C318	FCA01-470MB (1-126-205-21)	ELECT CHIP 47MF 20%	6.3V	
C253	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K	25V		C319	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K	25V	
C254	FCF08-474ZF (1-164-005-91)	CERAMIC CHIP 0.47MF F Z	25V		C321	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V	
C255	FCF08-474ZF (1-164-005-91)	CERAMIC CHIP 0.47MF F Z	25V		C322	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z	16V	
C256	FCF08-474ZF (1-164-005-91)	CERAMIC CHIP 0.47MF F Z	25V		C323	K1135-08391 (1-135-083-91)	TANTAL. CHIP 0.47MF 20%	25V	
C261	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C331	CCH01-820JC (1-162-926-91)	CERAMIC CHIP 82PF CH J	50V	
C262	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C332	FCC01-220JH (1-162-919-91)	CERAMIC CHIP 22PF CH 5%	50V	
C265	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C333	CCH01-120JC (1-162-916-91)	CERAMIC CHIP 12PF CH J	50V	
C266	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C334	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z	16V	
C267	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C336	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K	25V	
C268	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z	16V		C337	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K	25V	
C269	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z	16V		C346	FCC01-390JH (1-162-922-91)	CERAMIC CHIP 39PF CH 5%	50V	
C272	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K	25V		C348	FCS07-150JH (1-163-097-91)	CERAMIC CHIP 15PF SL J	50V	
C273	CCH01-470JC (1-162-923-91)	CERAMIC CHIP 47PF CH J	50V		C349	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K	25V	
C274	FCC01-680JH (1-162-925-91)	CERAMIC CHIP 68PF CH 5%	50V		C360	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V	
C275	CCH01-120JC (1-162-916-91)	CERAMIC CHIP 12PF CH J	50V		C362	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K	25V	
C276	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C363	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20%	6.3V	
C277	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C364	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20%	6.3V	
C279	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	25V		C365	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K	25V	

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3 Electrical Parts

FF60WIDE PARTS LIST

VC-98P

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C366	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V	C522	CSH01-331JC (1-162-959-91)	CERAMIC CHIP 330PF SL J 50V
C367	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V	C523	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C368	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V	C524	FCS03-330JH (1-162-947-91)	CERAMIC CHIP 33PF SL J 50V
C369	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP 0.01MF F Z 50V	C525	CSH01-121JC (1-162-954-91)	CERAMIC CHIP 120PF SL J 50V
C370	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C526	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20% 6.3V
C371	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP 0.01MF F Z 50V	C528	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C372	CTG02-224MA (1-135-072-91)	TANTAL. CHIP 0.22MF A 20% 35V	C530	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C373	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V	C536	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C374	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C537	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20% 6.3V
C378	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V	C538	FCB05-223KF (1-164-227-91)	CERAMIC CHIP 0.022MF B K 25V
C379	K1135-08391 (1-135-083-91)	TANTAL. CHIP 0.47MF 20% 25V	C539	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C380	FCS02-820JH (1-163-249-91)	CERAMIC CHIP 82PF CH 5% 50V	C540	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C415	FCS03-220JH (1-162-945-91)	CERAMIC CHIP 22PF SL J 50V	C541	FCS03-180JH (1-162-944-91)	CERAMIC CHIP 18PF SL J 50V
C416	FCS03-470JH (1-162-949-91)	CERAMIC CHIP 47PF SL J 50V	C545	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C501	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20% 6.3V	C561	CCH01-330JC (1-162-921-91)	CERAMIC CHIP 33PF CH J 50V
C502	CSH01-221JC (1-162-957-91)	CERAMIC CHIP 220PF SL J 50V	C562	FCC01-200JH (1-164-160-91)	CERAMIC CHIP 20PF CH 10% 50V
C503	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C563	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C504	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C564	CCH01-100DC (1-162-915-91)	CERAMIC CHIP 10PF CH D 50V
C505	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C565	CTB02-225MA (1-135-099-91)	TANTAL. CHIP 2.2MF A 20% 6.3V
C506	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C566	CTB02-225MA (1-135-099-91)	TANTAL. CHIP 2.2MF A 20% 6.3V
C507	CBH01-471KC (1-162-962-91)	CERAMIC CHIP 470PF B K 50V	C567	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C508	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C569	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C509	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C570	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C510	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C571	FCB05-223KF (1-164-227-91)	CERAMIC CHIP 0.022MF B K 25V
C511	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C572	CSH01-101JC (1-162-953-91)	CERAMIC CHIP 100PF SL J 50V
C512	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C611	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP 0.01MF F Z 50V
C513	CCH01-080DC (1-162-913-91)	CERAMIC CHIP 8.0PF CH D 50V	C612	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP 0.01MF F Z 50V
C514	CCH01-050CC (1-162-910-91)	CERAMIC CHIP 5PF CH C 50V	C613	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C515	CCH01-270JC (1-162-920-91)	CERAMIC CHIP 27PF CH J 50V	C614	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C516	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V	C616	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C517	FCG04-225ZD (1-164-337-91)	CERAMIC CHIP 2.2MF F Z 16V	C617	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP 0.01MF F Z 50V
C518	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V	C618	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C519	CCH01-470JC (1-162-923-91)	CERAMIC CHIP 47PF CH J 50V	C619	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C520	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20% 6.3V	C620	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C521	CSH01-391JD (1-163-131-91)	CERAMIC CHIP 390PF SL J 50V	C621	FCS03-100DH (1-162-941-91)	CERAMIC CHIP 10PF SL D 50V

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VC-98P

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C623	FCC01-221JH (1-164-230-91)	CERAMIC CHIP 220PF CH 5%	D131	FQDW0003-00 (8-719-404-34)	DIODE MA141WA-TX
C624	FCC01-221JH (1-164-230-91)	CERAMIC CHIP 220PF CH 5%	D132	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX
C625	CCH01-121JC (1-162-928-91)	CERAMIC CHIP 120PF CH J	D141	FQDV0002-01 (8-713-200-48)	DIODE 1T32-T8
C626	CCH01-820JC (1-162-926-91)	CERAMIC CHIP 82PF CH J	D142	FQDV0002-01 (8-713-200-48)	DIODE 1T32-T8
C627	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	D301	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX
C628	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	D361	FQDW0003-00 (8-719-404-34)	DIODE MA141WA-TX
C629	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	D362	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX
C631	CBH01-222KC (1-162-966-91)	CERAMIC CHIP 2200PF B K	D561	FQDW0002-00 (8-719-404-50)	DIODE MA111-TX
C633	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	D562	FQDY0001-01 (8-719-420-52)	DIODE MA729-TX
C634	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	D563	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX
C636	FCF08-474ZF (1-164-005-91)	CERAMIC CHIP 0.47MF F Z	D564	FQDY0016-01 (8-719-976-32)	DIODE 1SS332TT-11
C637	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20%	D565	FQDY0016-01 (8-719-976-32)	DIODE 1SS332TT-11
C638	K1135-09191 (1-135-091-91)	TANTAL. CHIP 1MF 20%	D611	FQDW0003-00 (8-719-404-34)	DIODE MA141WA-TX
C639	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP 0.01MF F Z	----- FILTER -----		
C640	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP 0.01MF F Z	FL181	K1236-26621 (1-236-266-21)	FILTER, LOW PASS, YDL
C643	FCC01-221JH (1-164-230-91)	CERAMIC CHIP 220PF CH 5%	FL182	K1236-26721 (1-236-267-21)	FILTER, LOW PASS, YH
C644	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	FL303	FLDL0001-00 (1-415-695-21)	DELAY LINE, LCTH354LAI-4206DDG=P1
C647	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z	FL501	K1236-58921 (1-236-589-21)	B. P. F
C648	K1128-29111 (1-128-291-11)	ELECT CHIP 100MF 20%	FL502	FLDL0002-00 (1-415-660-22)	DELAY LINE, LCG355ENK-4396LAE=P11
----- CONNECTOR -----			FL503	FLLH0006-00 (1-236-450-21)	FILTER, LOW PASS TH355LSK-37192ME=P1
CN302	FGC028-0141 (1-568-333-51)	CONNECTOR 14P BOARD TO BOARD	FL504	K1236-58821 (1-236-588-21)	B. P. F
CN304	FGA007-0041 (1-565-543-11)	CONNECTOR 4P	FL601	K1236-20941 (1-236-209-41)	FILTER, LOW PASS
CN802	FGC004-0161 (1-568-366-41)	CONNECTOR 16P	----- IC -----		
CN803	FGC028-0201 (1-568-336-51)	CONNECTOR 20P BOARD TO BOARD	HICA1	KA7068-189A (A-7068-189-A)	DT-77LX HIC COMP
CN804	FGC004-0161 (1-568-366-41)	CONNECTOR 16P	IC141	FQHD0028-00 (8-752-335-86)	IC CXD2109Q-T3
CN805	FGC029-0201 (1-568-359-41)	CONNECTOR 20P BOARD TO BOARD	IC181	QIA20-690VA (8-752-034-18)	IC CXA1338R-T3
CN807	FGA037-0022	CONNECTOR 2P, 1.25MM ANGLE (RED)	IC182	FQHD0003-00 (8-752-333-16)	IC CXL1503N-T3
CN808	FGA037-0021 (1-565-149-11)	CONNECTOR 2P, 1.25MM ANGLE (WHITE)	IC183	FQHA0070-00 (8-752-334-45)	IC CXL5504M-T3 (Y 1HCCD)
----- TRIMMER -----			IC251	QIA20-700VA (8-752-034-22)	IC CXA1339R-T3
CT141	FCY03-300RK (1-141-424-61)	TRIMMER 30PF -0+50%	IC252	FQHD0017-00 (8-759-946-01)	IC MB88341PFV-T3
CT142	FCY03-300RK (1-141-424-61)	TRIMMER 30PF -0+50%	IC253	FQHA0086-00 (8-752-039-50)	IC CXA1393AN-T3
CT143	FCY01-060JH (1-141-421-31)	TRIMMER ECR-JA006A	IC301	QIA20-710VA (8-752-033-70)	IC CXA1072R-T3
----- DIODE -----			IC302	FQHD0017-00 (8-759-946-01)	IC MB88341PFV-T3
D101	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX	IC361	K8759-03760 (8-759-037-60)	IC MC68HC05N4-SC406667
D102	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX	IC362	FQHA0010-00 (8-759-937-57)	IC S-8054ALB-LM-T1

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF60WIDE PARTS LIST

VC-98P

Ref.No.	Part No.	Description
IC363	FQSC0009-00 (8-759-151-09)	IC UPD4066BG-T1
IC364	FQHA0128-00 (8-759-999-12)	IC LM311DR-E1 (CAP PWM LPF)
IC501	FQHA0002-00 (8-759-150-03)	IC UPC1037GR-E1
IC502	FQHA0002-00 (8-759-150-03)	IC UPC1037GR-E1
IC503	FQHA0093-00 (8-752-054-18)	IC CXA1047M-T5
IC561	K8759-15407 (8-759-154-07)	IC UPD7503GF-J59-3B8
IC610	FQHD0089-00 (8-752-339-40)	IC CXD1172AM-T3 (A/D CONVERTRE)
IC611	FQHA0131-00 (8-759-635-28)	IC M62352GP-E1 (EVR)
IC612	FQHD0001-00 (8-752-326-93)	IC CXD1204R-T3
IC613	K8759-03897	IC MC68HC05C4SC403835FU
IC615	FQHA0129-00 (8-759-999-11)	IC LM358DR-E1 (AD REF)
IC616	FQHD0026-00 (8-759-030-72)	IC SC14S66FER
----- COIL -----		
L101	LA007-470KA (1-412-031-22)	INDUCTOR CHIP 47UH 10% Q 20
L102	LA007-470KA (1-412-031-22)	INDUCTOR CHIP 47UH 10% Q 20
L141	LA003-680KF (1-410-391-21)	INDUCTOR CHIP 68UH 10%
L142	LA003-100KF (1-410-381-21)	INDUCTOR CHIP 10UH 10% Q 30
L182	LA007-470KA (1-412-031-22)	INDUCTOR CHIP 47UH 10% Q 20
L183	LA003-100KF (1-410-381-21)	INDUCTOR CHIP 10UH 10% Q 30
L251	LA003-100KF (1-410-381-21)	INDUCTOR CHIP 10UH 10% Q 30
L303	LA009-100ME (1-410-204-21)	INDUCTOR CHIP 10UH 20% Q 30
L304	LA003-820KF (1-410-392-21)	INDUCTOR CHIP 82UH 10%
L361	LA003-100KF (1-410-381-21)	INDUCTOR CHIP 10UH 10% Q 30
L401	LA009-010KE (1-410-192-41)	INDUCTOR CHIP 1UH 10% Q 25
L402	LA009-010KE (1-410-192-41)	INDUCTOR CHIP 1UH 10% Q 25
L404	LA009-010KE (1-410-192-41)	INDUCTOR CHIP 1UH 10% Q 25
L501	LA003-100KF (1-410-381-21)	INDUCTOR CHIP 10UH 10% Q 30
L502	LA003-221KF (1-410-658-21)	INDUCTOR CHIP 220UH 10% Q 20
L503	LA003-390KF (1-410-388-21)	INDUCTOR CHIP 39UH 10%
L509	LA003-100KF (1-410-381-21)	INDUCTOR CHIP 10UH 10% Q 30
L561	LA003-010MF (1-410-369-21)	INDUCTOR CHIP 1.0UH 20%
L610	LA003-100KF (1-410-381-21)	INDUCTOR CHIP 10UH 10% Q 30
L611	LA003-470KF (1-410-389-21)	INDUCTOR CHIP 47UH 10% Q 30
L612	LA003-121KF (1-410-655-21)	INDUCTOR CHIP 120UH 10%

Ref.No.	Part No.	Description
----- TRANSISTOR -----		
Q101	QTY20-320RA (8-729-402-86)	TRANSISTOR XN4601-TX
Q102	QTY20-320RA (8-729-402-86)	TRANSISTOR XN4601-TX
Q106	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q107	QTY20-320RA (8-729-402-86)	TRANSISTOR XN4601-TX
Q111	QTY20-320RA (8-729-402-86)	TRANSISTOR XN4601-TX
Q112	QTY20-320RA (8-729-402-86)	TRANSISTOR XN4601-TX
Q113	QTP20-100QA (8-729-921-59)	TRANSISTOR DTA144TU-T106
Q131	FQW0003-00 (8-729-402-15)	TRANSISTOR XN1501-TX
Q132	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q135	FQW00020-01 (8-729-403-44)	TRANSISTOR XN1401-TX
Q141	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q142	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q181	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q182	QTY20-210RA (8-729-402-80)	TRANSISTOR XN6401-TX
Q183	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q184	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q185	FQW0003-00 (8-729-402-15)	TRANSISTOR XN1501-TX
Q186	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q187	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q188	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q189	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q190	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q191	QTY20-210RA (8-729-402-80)	TRANSISTOR XN6401-TX
Q192	QTY20-210RA (8-729-402-80)	TRANSISTOR XN6401-TX
Q193	QTY20-210RA (8-729-402-80)	TRANSISTOR XN6401-TX
Q194	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q195	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q196	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q255	QTY20-320RA (8-729-402-86)	TRANSISTOR XN4601-TX
Q256	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106
Q257	QTY20-320RA (8-729-402-86)	TRANSISTOR XN4601-TX
Q302	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q303	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q305	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q307	FQW0019-01 (8-729-402-83)	TRANSISTOR XN4501-TX

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VC-98P

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
Q309	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	----- RESISTOR -----		
Q312	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	R102	FRE005-103J (1-216-833-91)	METAL GLAZE 10K 5% 1/16W
Q361	FQW0002-00 (8-729-403-08)	TRANSISTOR XN1213-TX	R103	FRE005-152J (1-216-823-91)	METAL GLAZE 1.5K 5% 1/16W
Q362	QTY20-340RA (8-729-403-11)	TRANSISTOR XN6215-TX	R104	FRE005-153J (1-216-835-91)	METAL GLAZE 15K 5% 1/16W
Q363	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	R105	FRE005-223J (1-216-837-91)	METAL GLAZE 22K 5% 1/16W
Q364	QTY20-340RA (8-729-403-11)	TRANSISTOR XN6215-TX	R107	FRE005-821J (1-216-820-91)	METAL GLAZE 820 5% 1/16W
Q365	QTY20-210RA (8-729-402-80)	TRANSISTOR XN6401-TX	R108	FRE005-333J (1-216-839-91)	METAL GLAZE 33K 5% 1/16W
Q367	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	R109	FRE005-223J (1-216-837-91)	METAL GLAZE 22K 5% 1/16W
Q368	QTY20-340RA (8-729-403-11)	TRANSISTOR XN6215-TX	R111	FRE005-122J (1-216-822-91)	METAL GLAZE 1.2K 5% 1/16W
Q501	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	R112	FRE005-183J (1-216-836-91)	METAL GLAZE 18K 5% 1/16W
Q502	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	R116	FRE005-183J (1-216-836-91)	METAL GLAZE 18K 5% 1/16W
Q503	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	R117	FRE005-104J (1-216-845-91)	METAL GLAZE 100K 5% 1/16W
Q504	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	R118	FRE005-223J (1-216-837-91)	METAL GLAZE 22K 5% 1/16W
Q505	FQTC0002-06 (8-729-142-03)	TRANSISTOR 2SC2223-T1F13F14	R123	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
Q508	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	R128	FRE005-000J (1-216-864-91)	METAL GLAZE 0 5% 1/16W
Q509	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	R129	FRE005-000J (1-216-864-91)	METAL GLAZE 0 5% 1/16W
Q561	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	R133	FRE005-823J (1-216-844-91)	METAL GLAZE 820 5% 1/16W
Q563	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106	R134	FRE005-274J (1-216-850-91)	METAL GLAZE 270K 5% 1/16W
Q564	FQTN0001-00 (8-729-921-10)	TRANSISTOR DTC144TU-T106	R135	FRE005-103J (1-216-833-91)	METAL GLAZE 10K 5% 1/16W
Q565	QTY20-210RA (8-729-402-80)	TRANSISTOR XN6401-TX	R136	FRE005-153J (1-216-835-91)	METAL GLAZE 15K 5% 1/16W
Q566	QTN20-220RA (8-729-402-21)	TRANSISTOR XN6501TX	R137	FRE005-105J (1-216-857-91)	METAL GLAZE 1M 5% 1/16W
Q567	QTY20-210RA (8-729-402-80)	TRANSISTOR XN6401-TX	R138	FRE005-683J (1-216-843-91)	METAL GLAZE 68K 5% 1/16W
Q568	K8729-20221 (8-729-202-21)	TRANSISTOR 2SK2090-TE85L	R141	FRE005-102J (1-216-821-91)	METAL GLAZE 1K 5% 1/16W
Q569	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	R142	FRE005-333J (1-216-839-91)	METAL GLAZE 33K 5% 1/16W
Q570	QTN20-230QA (8-729-905-16)	TRANSISTOR DTC144WU-T106	R143	FRE005-000J (1-216-864-91)	METAL GLAZE 0 5% 1/16W
Q571	FQW0001-00 (8-729-920-46)	TRANSISTOR IMT1US-T110	R144	FRE005-332J (1-216-827-91)	METAL GLAZE 3.3K 5% 1/16W
Q572	FQTB0001-00 (8-729-820-88)	TRANSISTOR 2SB1121-ST-TD	R147	FRE005-000J (1-216-864-91)	METAL GLAZE 0 5% 1/16W
Q573	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106	R148	FRE005-101J (1-216-809-91)	METAL GLAZE 100 5% 1/16W
Q610	QTY20-340RA (8-729-403-11)	TRANSISTOR XN6215-TX	R149	FRE005-683J (1-216-843-91)	METAL GLAZE 68K 5% 1/16W
Q612	FQTN0001-00 (8-729-921-10)	TRANSISTOR DTC144TU-T106	R150	FRE005-105J (1-216-857-91)	METAL GLAZE 1M 5% 1/16W
Q613	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	R151	FRE005-103J (1-216-833-91)	METAL GLAZE 10K 5% 1/16W
Q614	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	R152	FRE005-104J (1-216-845-91)	METAL GLAZE 100K 5% 1/16W
Q619	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	R153	FRE005-000J (1-216-864-91)	METAL GLAZE 0 5% 1/16W
Q620	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	R154	FRE005-101J (1-216-809-91)	METAL GLAZE 100 5% 1/16W
Q621	QTN20-220RA (8-729-402-21)	TRANSISTOR XN6501TX	R155	FRE005-222J (1-216-825-91)	METAL GLAZE 2.2K 5% 1/16W

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3 Electrical Parts

FF60WIDE PARTS LIST

VC-98P

Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
R156	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K	5%	1/16W	R204	FRE005-183J (1-216-836-91)	METAL GLAZE	18K	5%	1/16W
R157	FRE005-822J (1-216-832-91)	METAL GLAZE	8.2K	5%	1/16W	R205	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W
R158	FRE005-392J (1-216-828-91)	METAL GLAZE	3.9K	5%	1/16W	R206	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W
R162	FRE005-181J (1-216-812-91)	METAL GLAZE	180	5%	1/16W	R207	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W
R163	FRE005-151J (1-216-811-91)	METAL GLAZE	150	5%	1/16W	R208	FRE005-563J (1-216-842-91)	METAL GLAZE	56K	5%	1/16W
R165	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R209	FRE005-393J (1-216-840-91)	METAL GLAZE	39K	5%	1/16W
R166	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R210	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W
R168	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R211	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R170	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W	R212	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R171	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R213	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W
R172	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R214	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W
R174	FRE004-000J (1-216-296-91)	METAL GLAZE	0	5%	1/8W	R215	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R175	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R217	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W
R177	FRE005-563J (1-216-842-91)	METAL GLAZE	56K	5%	1/16W	R218	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W
R178	FRE005-153J (1-216-835-91)	METAL GLAZE	15K	5%	1/16W	R219	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W
R181	FRE003-912J (1-216-072-91)	METAL GLAZE	9.1K	5%	1/10W	R220	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W
R182	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K	5%	1/16W	R221	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W
R183	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R222	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R184	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W	R223	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W
R185	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R224	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R186	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R225	FRE005-822J (1-216-832-91)	METAL GLAZE	8.2K	5%	1/16W
R187	FRE005-182J (1-216-824-91)	METAL GLAZE	1.8K	5%	1/16W	R226	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R188	FRE005-181J (1-216-812-91)	METAL GLAZE	180	5%	1/16W	R229	FRE005-392J (1-216-828-91)	METAL GLAZE	3.9K	5%	1/16W
R189	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W	R231	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W
R190	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R233	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K	5%	1/16W
R193	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R234	FRE005-563J (1-216-842-91)	METAL GLAZE	56K	5%	1/16W
R194	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W	R235	RMB01-682DD (1-216-671-91)	METAL GLAZE	6.8K	0.5%	1/10W
R195	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W	R236	RMB01-822DD (1-216-673-91)	METAL GLAZE	8.2K	0.5%	1/10W
R196	FRE005-393J (1-216-840-91)	METAL GLAZE	39K	5%	1/16W	R237	RMB01-223DD (1-216-683-91)	METAL GLAZE	22K	0.5%	1/10W
R197	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W	R238	RMB01-682DD (1-216-671-91)	METAL GLAZE	6.8K	0.5%	1/10W
R199	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R239	RMB01-222DD (1-216-659-91)	METAL GLAZE	2.2K	0.5%	1/10W
R200	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R240	RMB01-183DD (1-216-681-91)	METAL GLAZE	18K	0.5%	1/10W
R201	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W	R241	FRE005-563J (1-216-842-91)	METAL GLAZE	56K	5%	1/16W
R202	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K	5%	1/16W	R242	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W
R203	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R243	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W

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VC-98P

Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
R244	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W	R337	RMB01-103DD (1-216-675-91)	METAL GLAZE	10K	0.5%	1/10W
R245	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R338	FRE005-273J (1-216-838-91)	METAL GLAZE	27K	5%	1/16W
R246	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R339	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W
R267	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R341	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R268	FRE005-561J (1-216-818-91)	METAL GLAZE	560	5%	1/16W	R342	FRE005-392J (1-216-828-91)	METAL GLAZE	3.9K	5%	1/16W
R269	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R347	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W
R270	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R348	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W
R272	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R349	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W
R273	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R350	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W
R274	FRE005-561J (1-216-818-91)	METAL GLAZE	560	5%	1/16W	R352	FRE005-153J (1-216-835-91)	METAL GLAZE	15K	5%	1/16W
R275	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R353	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W
R276	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R355	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W
R277	FRE005-123J (1-216-834-91)	METAL GLAZE	12K	5%	1/16W	R361	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R278	FRE005-683J (1-216-843-91)	METAL GLAZE	68K	5%	1/16W	R362	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R295	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R364	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R296	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R365	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W
R301	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R366	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W
R302	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K	5%	1/16W	R367	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W
R303	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R368	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R304	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W	R369	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R305	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R370	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W
R307	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W	R371	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R310	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R372	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W
R311	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R373	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K	5%	1/16W
R314	FRE005-391J (1-216-816-91)	METAL GLAZE	390	5%	1/16W	R374	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W
R315	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K	5%	1/16W	R375	FRE005-393J (1-216-840-91)	METAL GLAZE	39K	5%	1/16W
R316	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R376	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R318	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R377	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W
R319	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W	R378	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R320	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W	R382	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W
R321	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R383	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W
R322	FRE005-822J (1-216-832-91)	METAL GLAZE	8.2K	5%	1/16W	R384	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R323	FRE005-562J (1-216-830-91)	METAL GLAZE	5.6K	5%	1/16W	R385	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R331	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R397	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W
R332	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W	R398	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF60WIDE PARTS LIST

VC-98P

Ref.No.	Part No.	Description							
R401	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R511	FRE005-821J (1-216-820-91)	METAL GLAZE	820 5% 1/16W
R402	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R512	FRE005-153J (1-216-835-91)	METAL GLAZE	15K 5% 1/16W
R403	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W	R513	FRE005-563J (1-216-842-91)	METAL GLAZE	56K 5% 1/16W
R404	FRE005-224J (1-216-849-91)	METAL GLAZE	220K	5%	1/16W	R514	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K 5% 1/16W
R405	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R515	FRE005-102J (1-216-821-91)	METAL GLAZE	1K 5% 1/16W
R406	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R516	FRE005-272J (1-216-826-91)	METAL GLAZE	2.7K 5% 1/10W
R407	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R517	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K 5% 1/16W
R408	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R518	RMB01-123DD (1-216-677-91)	METAL GLAZE	12K 0.5% 1/10W
R409	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R519	RMB01-682DD (1-216-671-91)	METAL GLAZE	6.8K 0.5% 1/10W
R410	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R520	RMB01-153DD (1-216-679-91)	METAL GLAZE	15K 0.5% 1/10W
R411	FRE003-000J (1-216-295-91)	METAL GLAZE	0	5%	1/10W	R521	RMB01-153DD (1-216-679-91)	METAL GLAZE	15K 0.5% 1/10W
R412	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R522	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K 5% 1/16W
R413	FRE005-221J (1-216-813-91)	METAL GLAZE	220	5%	1/16W	R523	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K 5% 1/16W
R414	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R524	FRE005-103J (1-216-833-91)	METAL GLAZE	10K 5% 1/16W
R415	FRE005-221J (1-216-813-91)	METAL GLAZE	220	5%	1/16W	R525	FRE005-474J (1-216-853-91)	METAL GLAZE	470K 5% 1/16W
R417	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R526	FRE005-471J (1-216-817-91)	METAL GLAZE	470 5% 1/16W
R418	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R527	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K 5% 1/16W
R422	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R528	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K 5% 1/16W
R424	FRE005-822J (1-216-832-91)	METAL GLAZE	8.2K	5%	1/16W	R529	FRE005-471J (1-216-817-91)	METAL GLAZE	470 5% 1/16W
R425	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R530	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K 5% 1/16W
R426	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R531	FRE005-561J (1-216-818-91)	METAL GLAZE	560 5% 1/16W
R427	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R532	FRE005-105J (1-216-857-91)	METAL GLAZE	1M 5% 1/16W
R428	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R533	FRE005-153J (1-216-835-91)	METAL GLAZE	15K 5% 1/16W
R429	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R534	FRE005-471J (1-216-817-91)	METAL GLAZE	470 5% 1/16W
R430	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R535	FRE005-562J (1-216-830-91)	METAL GLAZE	5.6K 5% 1/16W
R441	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R541	FRE005-102J (1-216-821-91)	METAL GLAZE	1K 5% 1/16W
R442	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R543	FRE005-102J (1-216-821-91)	METAL GLAZE	1K 5% 1/16W
R443	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R547	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K 5% 1/16W
R503	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R548	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K 5% 1/16W
R505	FRE005-681J (1-216-819-91)	METAL GLAZE	680	5%	1/16W	R549	FRE005-681J (1-216-819-91)	METAL GLAZE	680 5% 1/16W
R506	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W	R550	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K 5% 1/16W
R507	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W	R551	FRE005-102J (1-216-821-91)	METAL GLAZE	1K 5% 1/16W
R508	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R552	FRE005-272J (1-216-826-91)	METAL GLAZE	2.7K 5% 1/10W
R509	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W	R560	FRE005-102J (1-216-821-91)	METAL GLAZE	1K 5% 1/16W
R510	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R561	FRE005-224J (1-216-849-91)	METAL GLAZE	220K 5% 1/16W

When indicating parts by reference number, please include the board name.

VC-98P

Ref.No.	Part No.	Description					Ref.No.	Part No.	Description				
R562	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W		R624	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W	
R563	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W		R631	FRE005-823J (1-216-844-91)	METAL GLAZE	820	5%	1/16W	
R564	FRE005-334J (1-216-851-91)	METAL GLAZE	330K	5%	1/16W		R632	FRE005-681J (1-216-819-91)	METAL GLAZE	680	5%	1/16W	
R565	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W		R633	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	
R566	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W		R634	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	
R567	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W		R635	FRE005-564J (1-216-854-91)	METAL GLAZE	560K	5%	1/16W	
R568	FRE001-104F (1-216-739-91)	METAL GLAZE	100K	1%	1/10W		R636	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	
R569	FRE005-394J (1-216-809-91)	METAL GLAZE	390K	5%	1/16W		R637	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W	
R570	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W		R638	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W	
R571	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W		R639	FRE005-562J (1-216-830-91)	METAL GLAZE	5.6K	5%	1/16W	
R572	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W		R640	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W	
R573	FRE005-334J (1-216-851-91)	METAL GLAZE	330K	5%	1/16W		R641	FRE005-561J (1-216-818-91)	METAL GLAZE	560	5%	1/16W	
R574	FRE005-101J (1-216-809-91)	METAL GLAZE	100	5%	1/16W		R642	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	
R575	FRE005-225J (1-216-861-91)	METAL GLAZE	2.2M	5%	1/16W		R643	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	
R576	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W		R644	FRE005-182J (1-216-824-91)	METAL GLAZE	1.8K	5%	1/16W	
R577	FRE005-683J (1-216-843-91)	METAL GLAZE	68K	5%	1/16W		R645	FRE005-562J (1-216-830-91)	METAL GLAZE	5.6K	5%	1/16W	
R578	FRE004-2R7J (1-216-136-91)	METAL GLAZE	2.7	5%	1/8W		R646	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W	
R579	FRE005-392J (1-216-828-91)	METAL GLAZE	3.9K	5%	1/16W		R647	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	
R580	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K	5%	1/16W		R649	RMB01-273DD (1-216-685-91)	METAL GLAZE	27K	0.5%	1/10W	
R581	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W		R650	RMB01-103DD (1-216-675-91)	METAL GLAZE	10K	0.5%	1/10W	
R582	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W		R651	RMB01-103DD (1-216-675-91)	METAL GLAZE	10K	0.5%	1/10W	
R583	FRE001-684F (1-218-172-91)	METAL GLAZE	680K	1%	1/10W		R653	FRE005-154J (1-216-847-91)	METAL GLAZE	150K	5%	1/16W	
R584	FRE001-684F (1-218-172-91)	METAL GLAZE	680K	1%	1/10W		R654	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	
R585	FRE005-183J (1-216-836-91)	METAL GLAZE	18K	5%	1/16W		R656	FRE005-392J (1-216-828-91)	METAL GLAZE	3.9K	5%	1/16W	
R587	FRE005-680J (1-216-807-91)	METAL GLAZE	68	5%	1/16W		R657	FRE005-561J (1-216-818-91)	METAL GLAZE	560	5%	1/16W	
R589	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W		R659	FRE005-823J (1-216-844-91)	METAL GLAZE	820	5%	1/16W	
R609	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W		R661	FRE005-221J (1-216-813-91)	METAL GLAZE	220	5%	1/16W	
R610	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W		R662	FRE005-221J (1-216-813-91)	METAL GLAZE	220	5%	1/16W	
R611	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W		R663	FRE005-221J (1-216-813-91)	METAL GLAZE	220	5%	1/16W	
R617	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W		R664	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W	
R618	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W		R665	FRE005-562J (1-216-830-91)	METAL GLAZE	5.6K	5%	1/16W	
R619	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W		R666	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W	
R620	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W								
R621	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W								
R623	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W								

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3 Electrical Parts

FF60WIDE PARTS LIST

VC-98P

VF-40P

Ref.No.	Part No.	Description
----- NETWORK RESISTOR -----		
RB101	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP 10K 5%
RB141	FRW001-222J (1-236-416-91)	NETWORK, RES, CHIP 2.2K 5%
RB181	FRW001-152J (1-236-414-91)	NETWORK, RES, CHIP 1.5K 5%
RB182	FRW001-102J (1-236-412-91)	NETWORK, RES, CHIP 1K 5%
RB183	FRW001-472J (1-236-420-91)	NETWORK, RES, CHIP 4.7K 5%
RB184	FRW001-472J (1-236-420-91)	NETWORK, RES, CHIP 4.7K 5%
RB252	FRW001-561J (1-236-409-91)	NETWORK, RES, CHIP 560 5%
RB253	FRW001-561J (1-236-409-91)	NETWORK, RES, CHIP 560 5%
RB301	FRW001-102J (1-236-412-91)	NETWORK, RES, CHIP 1K 5%
RB362	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
RB363	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP 10K 5%
RB561	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
RB562	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
RB563	FRW001-102J (1-236-412-91)	NETWORK, RES, CHIP 1K 5%
RB564	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
RB565	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
RB566	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
RB567	FRW001-102J (1-236-412-91)	NETWORK, RES, CHIP 1K 5%
RB569	FRW001-102J (1-236-412-91)	NETWORK, RES, CHIP 1K 5%
RB570	FRW001-473J (1-236-432-91)	NETWORK, RES, CHIP 47K 5%
RB574	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
RB575	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
RB576	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP 10K 5%
RB577	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP 10K 5%
RB611	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP 10K 5%
RB613	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
RB614	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
RB615	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP 100K 5%
----- VARIABLE RESISTOR -----		
RV501	FRU006-472N (1-238-089-31)	RES. ADJ 4.7K B 25% 3MM
RV502	FRU006-472N (1-238-089-31)	RES. ADJ 4.7K B 25% 3MM
RV503	FRU006-222N (1-238-088-21)	RES. ADJ 2.2K B 25% 3MM
RV504	FRU006-102N (1-238-087-31)	RES. ADJ 1K B 25% 3MM
RV505	FRU006-102N (1-238-087-31)	RES. ADJ 1K B 25% 3MM

Ref.No.	Part No.	Description
RV561	FRU006-104N (1-238-093-31)	RES. ADJ 100K B 25% 3MM
----- FLEXIBLE BOARD -----		
W303	KA7071-175A (A-7071-175-A)	FP-362 MOUNT
W801	KA7071-199A (A-7071-199-A)	FP-331 MOUNT
----- CRYSTAL VIBRATOR -----		
X101	K1579-07622 (1-579-076-22)	OSCILLATOR, CRYSTAL
X141	K1567-73312 (1-567-733-12)	OSCILLATOR, CRYSTAL
X361	FZ00348-100 (1-577-118-21)	VIBRATOR, LITHIUM NIOBATE
X561	FZ00206-100 (1-579-049-21)	CRYSTAL KF-38G 32.768M

	A-7062-393B	VF-40P BOARD, COMPLETE (A-7062-393-B)

	K1635-64822 (1-635-648-22)	VF-40P BOARD
	K1946-02714 (1-946-027-14)	HARNESS (EV-50)
	K3747-12601 (3-747-126-01)	HOLDER, LED, ABS
----- CAPACITOR -----		
C951	FCA31-337MB (1-124-442-71)	ELECT (LEAD) 330MF 20% 6.3V
C953	FCF09-104ZH (1-163-077-91)	CERAMIC CHIP 0.1MF F Z 50V
C954	CTB02-225MA (1-135-099-91)	TANTAL. CHIP 2.2MF A 20% 6.3V
C955	CBF01-223KD (1-163-037-91)	CERAMIC CHIP 0.022MF B K 25V
C956	FCT10-476KB (1-131-387-41)	TANTAL. CHIP 47MF 10% 6.3V
C957	CFF01-224ZE (1-163-081-91)	CERAMIC CHIP 0.22MF F Z 25V
C958	FCH07-104JF (1-136-718-21)	FILM 0.1MF 5% 25V
C959	FCS07-470JH (1-163-109-91)	CERAMIC CHIP 47PF SL 5% 50V
C960	FCA35-476MB (1-127-486-81)	ELECT (LEAD) 47MF 20% 6.3V
C961	△ FCC07-102KH (1-163-047-91)	CERAMIC CHIP 1000PF 10% 50V
C962	△ K1162-62591 (1-162-625-91)	CERAMIC CHIP 4700PF SL 5% 50V
C963	△ K1162-62591 (1-162-625-91)	CERAMIC CHIP 4700PF SL 5% 50V
C965	FCA32-826MC (1-126-090-61)	ELECT (LEAD) 82MF 20% 10V
C966	FCA30-225MG (1-124-243-61)	ELECT (LEAD) 2.2MF 20% 35V
C968	CBF01-223KD (1-163-037-91)	CERAMIC CHIP 0.022MF B K 25V
C969	CBN01-102KE (1-164-611-91)	CERAMIC CHIP 1000PF 10% 500V

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

VF-40P

VS-72

Ref.No.	Part No.	Description
----- CONNECTOR -----		
CN951	FGA005-0043 (1-566-759-11)	CONNECTOR 4P
CN952	FGA004-0021 (1-566-195-11)	CONNECTOR 2P FOR BOARD (WHITE)
CN953	FGA004-0022 (1-566-195-21)	CONNECTOR 2P FOR BOARD (RED)
----- DIODE -----		
D951	K8719-82065 (8-719-820-65)	DIODE TLS221
D952	FQDP0001-01 (8-719-400-25)	DIODE LN25RP
D953	FQDW0010-01 (8-719-400-24)	DIODE MA152WA-TX
----- IC -----		
IC951	FQHA0085-00 (8-759-420-02)	IC AN2512S-T1
----- COIL -----		
L951	FLA007-336J (1-410-826-41)	INDUCTOR CHIP 33UH 5% Q 40
L952	FLA016-470J (1-408-785-41)	INDUCTOR CHIP 47UH 5% Q 50
L953	FLYF0001-00 (1-459-876-41)	COIL, FERRIT (HLC)
----- TRANSISTOR -----		
Q953	FQTA0010-02 (8-729-200-90)	TRANSISTOR 2SA1163G-TE85L
Q954	FQTC0021-04 (8-729-102-63)	TRANSISTOR 2SC1623-T1 L7
Q955	FQTD0003-06 (8-729-142-19)	TRANSISTOR 2SD1615-T1GLGK
----- RESISTOR -----		
R953	FRE001-471J (1-216-041-91)	METAL GLAZE 470 5% 1/10W
R955	FRE001-120J (1-216-003-91)	METAL GLAZE 12 5% 1/10W
R956	FRE001-105J (1-216-121-91)	METAL GLAZE 1M 5% 1/10W
R957	FRE001-181J (1-216-031-91)	METAL GLAZE 180 5% 1/10W
R958	FRE001-104J (1-216-097-91)	METAL GLAZE 100K 5% 1/10W
R959	FRE001-474J (1-216-113-91)	METAL GLAZE 470K 5% 1/10W
R960	FRE001-152J (1-216-053-91)	METAL GLAZE 1.5K 5% 1/10W
R961	FRE013-270J (1-216-160-91)	METAL GLAZE 27 5% 1/8W
R962	FRE001-473F (1-216-336-91)	METAL GLAZE 47K 1% 1/10W
R963	FRE001-274J (1-216-107-91)	METAL GLAZE 270K 5% 1/10W
R964	FRE001-101J (1-216-025-91)	METAL GLAZE 100 5% 1/10W
R965	FRE001-4R7J (1-216-308-91)	METAL GLAZE 4.7 5% 1/10W
R967	FRE001-821J (1-216-047-91)	METAL GLAZE 82 5% 1/10W
R968	FRE001-682J (1-216-069-91)	METAL GLAZE 6.8K 5% 1/10W
R969	FRE001-393J (1-216-087-91)	METAL GLAZE 39K 5% 1/10W

Ref.No.	Part No.	Description
R970	FRE001-393J (1-216-087-91)	METAL GLAZE 39K 5% 1/10W
R972	FRE001-154J (1-216-101-91)	METAL GLAZE 150K 5% 1/10W
R973	FRE001-105J (1-216-121-91)	METAL GLAZE 1M 5% 1/10W
R974	FRE001-275J (1-216-131-91)	METAL GLAZE 2.7M 5% 1/10W
R975	FRE001-275J (1-216-131-91)	METAL GLAZE 2.7M 5% 1/10W
R976	FRE001-182J (1-216-055-91)	METAL GLAZE 1.8K 5% 1/10W
R978	FRE001-471J (1-216-041-91)	METAL GLAZE 470 5% 1/10W
R983	FRE001-105J (1-216-121-91)	METAL GLAZE 1M 5% 1/10W
----- VARIABLE RESISTOR -----		
RV951	FRU009-473N (1-238-858-21)	RES. ADJ 47K B
RV952	FRU009-471N (1-238-852-21)	RES. ADJ 470 B
RV953	FRU009-222N (1-238-854-21)	RES. ADJ 2.2K B
RV954	FRU010-105N (1-228-762-11)	RES. ADJ, METAL GLAZE 1M B
----- TRANSFORMER -----		
T951	K1439-48612 (1-439-486-12)	TRANSFORMER ASSY, FLYBACK
----- THERMISTOR -----		
TH951	K1807-93811 (1-807-938-11)	THERMISTOR
----- CONNECTOR -----		
W951	FZ00180-100 (1-540-019-41)	CONNECTOR, SOCKET ASSY. CRT

A-7062-389A VS-72 COMPL (A-7062-389-A)		

K1636-23211 VS-72 BOARD		
(1-636-232-11)		
K3736-31602 CASE, SHIELD (UPPER), RP		
(3-736-316-02)		
K3736-31702 CASE, SHIELD (LOWER), RP		
(3-736-317-02)		
K3736-32203 CASE, SHIELD, FE		
(3-736-322-03)		
K3736-88701 PLATE, SHIELD, DL PAL		
(3-736-887-01)		
K3747-74801 PLATE (LEFT), GROUND		
(3-747-748-01)		
K3747-74901 PLATE (RIGHT), GROUND		
(3-747-749-01)		
----- CAPACITOR -----		
C101	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C102	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF60WIDE PARTS LIST

VS-72

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C104	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V	C140	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V
C105	FCS03-220JH (1-162-945-91)	CERAMIC CHIP 22PF SL J 50V	C141	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C106	FCS03-220JH (1-162-945-91)	CERAMIC CHIP 22PF SL J 50V	C142	CBH01-472KC (1-162-968-91)	CERAMIC CHIP 4700PF B K 50V
C107	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V	C143	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V
C108	CTC10-226MA (1-135-161-91)	TANTAL. CHIP 22MF C 20% 10V	C144	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C109	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C145	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C110	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C146	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C111	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C147	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C112	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C148	CBH01-472KC (1-162-968-91)	CERAMIC CHIP 4700PF B K 50V
C113	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C149	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V
C114	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V	C150	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C115	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C151	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C116	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V	C152	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C117	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C161	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C118	CBH01-472KC (1-162-968-91)	CERAMIC CHIP 4700PF B K 50V	C162	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V
C119	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C163	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C120	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C164	CTC10-226MA (1-135-161-91)	TANTAL. CHIP 22MF C 20% 10V
C121	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C165	FCS03-390JH (1-162-948-91)	CERAMIC CHIP 39PF SL J 50V
C123	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C166	CBH01-681KC (1-162-963-91)	CERAMIC CHIP 680PF B K 50V
C124	CBH01-472KC (1-162-968-91)	CERAMIC CHIP 4700PF B K 50V	C167	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C125	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C168	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C126	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C169	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C127	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C170	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C128	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C171	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V
C129	FCS03-220JH (1-162-945-91)	CERAMIC CHIP 22PF SL J 50V	C172	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V
C130	FCS03-220JH (1-162-945-91)	CERAMIC CHIP 22PF SL J 50V	C173	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C131	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V	C174	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C132	CTC10-226MA (1-135-161-91)	TANTAL. CHIP 22MF C 20% 10V	C175	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V
C133	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C176	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C134	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C177	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V
C135	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C178	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V
C136	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C179	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C137	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C180	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V
C138	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V	C181	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C139	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C182	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V

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VS-72

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C183	CTC10-226MA (1-135-161-91)	TANTAL. CHIP 22MF C 20% 10V	C232	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C184	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C233	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V
C185	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C234	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C186	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C235	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C192	CFF01-104ZD (1-163-038-91)	CERAMIC CHIP 0.1MF F Z 25V	C236	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C193	CSH01-101JC (1-162-953-91)	CERAMIC CHIP 100PF SL J 50V	C237	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C194	CCH01-101JC (1-162-927-91)	CERAMIC CHIP 100PF CH J 50V	C238	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C195	CCH01-101JC (1-162-927-91)	CERAMIC CHIP 100PF CH J 50V	C239	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C196	FCC01-151JH (1-164-217-91)	CERAMIC CHIP 150PF CH J 50V	C240	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C197	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V	C241	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C201	CTG08-474MA (1-135-145-91)	TANTAL. CHIP 0.47MF A 20% 35V	C242	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V
C203	FCA01-470MB (1-126-205-21)	ELECT CHIP 47MF 20% 6.3V	C243	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C205	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V	C244	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C206	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V	C245	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP 0.01MF F Z 50V
C207	FCA01-221MA (1-126-210-21)	ELECT CHIP 220MF 20% 4V	C246	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V
C208	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP 0.01MF F Z 50V	C247	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V
C209	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V	C248	FCT06-104MG (1-135-070-91)	TANTAL. CHIP 0.1MF 20% 35V
C210	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C249	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C211	CTC02-225MA (1-135-149-91)	TANTAL. CHIP 2.2MF A 20% 10V	C250	CSH01-680JC (1-162-951-91)	CERAMIC CHIP 68PF SL J 50V
C212	FCT02-684MF (1-135-146-91)	TANTAL. CHIP 0.68MF 20% 25V	C251	CSH01-101JC (1-162-953-91)	CERAMIC CHIP 100PF SL J 50V
C213	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C252	FCS01-060DH (1-162-937-91)	CERAMIC CHIP 6PF SL 50V
C214	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V	C253	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C215	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C254	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V
C216	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V	C256	CSH01-101JC (1-162-953-91)	CERAMIC CHIP 100PF SL J 50V
C217	CTG02-224MA (1-135-072-91)	TANTAL. CHIP 0.22MF A 20% 35V	C257	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP 0.01MF F Z 50V
C218	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V	C258	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C219	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C259	FCS03-220JH (1-162-945-91)	CERAMIC CHIP 22PF SL J 50V
C220	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C260	CSH01-121JC (1-162-954-91)	CERAMIC CHIP 120PF SL J 50V
C221	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V	C261	FCS03-180JH (1-162-944-91)	CERAMIC CHIP 18PF SL J 50V
C222	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C262	CBH01-471KC (1-162-962-91)	CERAMIC CHIP 470PF B K 50V
C223	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C263	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V
C224	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V	C264	CSH01-101JC (1-162-953-91)	CERAMIC CHIP 100PF SL J 50V
C227	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V	C265	FCS03-120JH (1-162-942-91)	CERAMIC CHIP 12PF SL J 50V
C229	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V	C266	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C230	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V	C267	CSH01-471JD (1-163-133-91)	CERAMIC CHIP 470PF SL J 50V

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF60WIDE PARTS LIST

VS-72

Ref.No.	Part No.	Description			Ref.No.	Part No.	Description		
C268	CSH01-391JD (1-163-131-91)	CERAMIC CHIP	390PF SL J	50V	C306	CBF01-273KD (1-163-986-91)	CERAMIC CHIP	0.027UF B K	25V
C269	FCT06-106MB (1-135-157-91)	TANTAL. CHIP	10MF B 20%	6.3V	C307	FCS03-820JH (1-162-952-91)	CERAMIC CHIP	82PF SL J	50V
C270	FCT06-106MB (1-135-157-91)	TANTAL. CHIP	10MF B 20%	6.3V	C308	CBH01-222KC (1-162-966-91)	CERAMIC CHIP	2200PF B K	50V
C271	CSH01-271JC (1-162-958-91)	CERAMIC CHIP	270PF SL J	50V	C309	FCS03-330JH (1-162-947-91)	CERAMIC CHIP	33PF SL J	50V
C272	FCS03-220JH (1-162-945-91)	CERAMIC CHIP	22PF SL J	50V	C310	FCS03-470JH (1-162-949-91)	CERAMIC CHIP	47PF SL J	50V
C273	FCS03-560JH (1-162-950-91)	CERAMIC CHIP	56PF SL 5%	50V	C312	FCS03-470JH (1-162-949-91)	CERAMIC CHIP	47PF SL J	50V
C274	CSH01-271JC (1-162-958-91)	CERAMIC CHIP	270PF SL J	50V	C313	CBH01-471KC (1-162-962-91)	CERAMIC CHIP	470PF B K	50V
C275	FCT06-106MB (1-135-157-91)	TANTAL. CHIP	10MF B 20%	6.3V	C314	CTC10-226MA (1-135-161-91)	TANTAL. CHIP	22MF C 20%	10V
C276	CBF01-103KC (1-162-970-91)	CERAMIC CHIP	0.01MF B K	25V	C315	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP	0.01MF F Z	50V
C277	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP	0.01MF F Z	50V	C316	FCS03-390JH (1-162-948-91)	CERAMIC CHIP	39PF SL J	50V
C278	FCT06-106MB (1-135-157-91)	TANTAL. CHIP	10MF B 20%	6.3V	C317	FCS03-150JH (1-162-943-91)	CERAMIC CHIP	15PF SL J	50V
C279	CBH01-102KC (1-162-964-91)	CERAMIC CHIP	1000PF B K	50V	C318	CBF01-103KC (1-162-970-91)	CERAMIC CHIP	0.01MF B K	25V
C280	FCT06-106MB (1-135-157-91)	TANTAL. CHIP	10MF B 20%	6.3V	C319	FCS03-470JH (1-162-949-91)	CERAMIC CHIP	47PF SL J	50V
C281	FCT06-106MB (1-135-157-91)	TANTAL. CHIP	10MF B 20%	6.3V	C320	CSH01-181JC (1-162-956-91)	CERAMIC CHIP	180PF SL J	50V
C282	FCT06-106MB (1-135-157-91)	TANTAL. CHIP	10MF B 20%	6.3V	C321	FCC01-910JH (1-164-382-91)	CERAMIC CHIP	91PF CH	50V
C283	FCT06-106MB (1-135-157-91)	TANTAL. CHIP	10MF B 20%	6.3V	C322	FCS03-470JH (1-162-949-91)	CERAMIC CHIP	47PF SL J	50V
C284	CBF01-103KC (1-162-970-91)	CERAMIC CHIP	0.01MF B K	25V	C323	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP	0.1MF F Z	25V
C285	FCT06-106MB (1-135-157-91)	TANTAL. CHIP	10MF B 20%	6.3V	C324	FCS03-820JH (1-162-952-91)	CERAMIC CHIP	82PF SL J	50V
C287	CSH01-680JC (1-162-951-91)	CERAMIC CHIP	68PF SL J	50V	C325	CBH01-332KC (1-162-967-91)	CERAMIC CHIP	3300PF B K	50V
C288	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP	0.01MF F Z	50V	C326	CBH01-102KC (1-162-964-91)	CERAMIC CHIP	1000PF B K	50V
C289	CTC10-226MA (1-135-161-91)	TANTAL. CHIP	22MF C 20%	10V	C327	CBF01-103KC (1-162-970-91)	CERAMIC CHIP	0.01MF B K	25V
C290	CSH01-221JC (1-162-957-91)	CERAMIC CHIP	220PF SL J	50V	C329	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP	0.1MF F Z	25V
C291	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP	1MF F Z	16V	C330	FCS01-080DH (1-162-939-91)	CERAMIC CHIP	8PF SL	50V
C293	CTC10-226MA (1-135-161-91)	TANTAL. CHIP	22MF C 20%	10V	C331	CSH01-271JC (1-162-958-91)	CERAMIC CHIP	270PF SL J	50V
C294	CTG08-474MA (1-135-145-91)	TANTAL. CHIP	0.47MF A 20%	35V	C333	FCS01-050CH (1-162-936-91)	CERAMIC CHIP	5PF SL	50V
C295	CBF01-103KC (1-162-970-91)	CERAMIC CHIP	0.01MF B K	25V	C334	FCB05-223KF (1-164-227-91)	CERAMIC CHIP	0.022MF B K	25V
C296	FCS03-330JH (1-162-947-91)	CERAMIC CHIP	33PF SL J	50V	C335	CBF01-103KC (1-162-970-91)	CERAMIC CHIP	0.01MF B K	25V
C297	CBF01-103KC (1-162-970-91)	CERAMIC CHIP	0.01MF B K	25V	C336	CBF01-103KC (1-162-970-91)	CERAMIC CHIP	0.01MF B K	25V
C298	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP	0.01MF F Z	50V	C337	FCS03-120JH (1-162-942-91)	CERAMIC CHIP	12PF SL J	50V
C299	CBF01-103KC (1-162-970-91)	CERAMIC CHIP	0.01MF B K	25V	C338	FCB05-223KF (1-164-227-91)	CERAMIC CHIP	0.022MF B K	25V
C301	FCS03-270JH (1-162-946-91)	CERAMIC CHIP	27PF SL J	50V	C340	FCS03-390JH (1-162-948-91)	CERAMIC CHIP	39PF SL J	50V
C302	FCA01-470MB (1-126-205-21)	ELECT CHIP	47MF 20%	6.3V	C344	FCS03-100DH (1-162-941-91)	CERAMIC CHIP	10PF SL D	50V
C303	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP	0.01MF F Z	50V	C345	CSH01-101JC (1-162-953-91)	CERAMIC CHIP	100PF SL J	50V
C304	FCT06-106MB (1-135-157-91)	TANTAL. CHIP	10MF B 20%	6.3V	C346	CBF01-103KC (1-162-970-91)	CERAMIC CHIP	0.01MF B K	25V
C305	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP	0.01MF F Z	50V	C347	CFH01-103ZC (1-162-974-91)	CERAMIC CHIP	0.01MF F Z	50V

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VS-72

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
C348	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V	C524	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V
C349	FCC02-111JH (1-163-252-91)	CERAMIC CHIP 110PF CH 5% 50V	C525	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V
C350	CSH01-331JC (1-162-959-91)	CERAMIC CHIP 330PF SL J 50V	C526	CBF01-473KE (1-163-080-91)	CERAMIC CHIP 0.047MF B K 25V
C351	FCT02-105ME (1-135-147-91)	TANTAL. CHIP 1MF 20% 20V	C530	FCB07-154KD (1-164-107-91)	CERAMIC CHIP 0.15MF R K 16V
C352	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C531	CFF01-104ZD (1-163-038-91)	CERAMIC CHIP 0.1MF F Z 25V
C353	CTB08-475MA (1-135-181-91)	TANTAL. CHIP 4.7MF A 20% 6.3V	C532	FCB07-154KD (1-164-107-91)	CERAMIC CHIP 0.15MF R K 16V
C354	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V	C542	CBH01-472KC (1-162-968-91)	CERAMIC CHIP 4700PF B K 50V
C355	FCT02-105ME (1-135-147-91)	TANTAL. CHIP 1MF 20% 20V	C543	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C356	PCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V	C544	CBH01-472KC (1-162-968-91)	CERAMIC CHIP 4700PF B K 50V
C358	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V	C546	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V
C359	FCF07-104ZF (1-164-156-91)	CERAMIC CHIP 0.1MF F Z 25V	C547	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C366	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C548	CFF01-104ZD (1-163-038-91)	CERAMIC CHIP 0.1MF F Z 25V
C371	CSH01-121JC (1-162-954-91)	CERAMIC CHIP 120PF SL J 50V	C549	FCT06-106MB (1-135-157-91)	TANTAL. CHIP 10MF B 20% 6.3V
C501	K1130-49511 (1-130-495-11)	FILM C 0.1MF J 5% 50V	C550	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C502	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V	C551	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C503	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V	C552	FCB05-223KF (1-164-227-91)	CERAMIC CHIP 0.022MF B K 25V
C504	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V	C553	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V
C505	CBF01-223KD (1-163-037-91)	CERAMIC CHIP 0.022MF B K 25V	C554	FCB05-223KF (1-164-227-91)	CERAMIC CHIP 0.022MF B K 25V
C506	CBH01-332KC (1-162-967-91)	CERAMIC CHIP 3300PF B K 50V	C555	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V
C507	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V	C556	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C508	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V	C557	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C509	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V	C558	CBH01-103KD (1-163-021-91)	CERAMIC CHIP 0.01MF B K 50V
C510	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V	C559	CCH01-330JC (1-162-921-91)	CERAMIC CHIP 33PF CH J 50V
C511	CBH01-472KC (1-162-968-91)	CERAMIC CHIP 4700PF B K 50V	C560	CCH01-330JC (1-162-921-91)	CERAMIC CHIP 33PF CH J 50V
C512	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V	C561	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V
C513	FCA01-100MD (1-124-779-21)	ELECT CHIP 10MF 20% 16V	C562	CSH01-471JD (1-163-133-91)	CERAMIC CHIP 470PF SL J 50V
C514	CTB02-335MA (1-135-150-91)	TANTAL. CHIP 3.3MF A 20% 6.3V	C563	CSH01-102JD (1-163-141-91)	CERAMIC CHIP 1000PF SL J 50V
C515	CTC02-225MA (1-135-149-91)	TANTAL. CHIP 2.2MF A 20% 10V	C564	FCS03-470JH (1-162-949-91)	CERAMIC CHIP 47PF SL J 50V
C516	CBF01-103KC (1-162-970-91)	CERAMIC CHIP 0.01MF B K 25V	C565	CSH01-152JD (1-163-145-91)	CERAMIC CHIP 1500PF SL J 50V
C518	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C566	FCS03-220JH (1-162-945-91)	CERAMIC CHIP 22PF SL J 50V
C519	CBF01-682KC (1-162-969-91)	CERAMIC CHIP 6800PF B K 25V	C567	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V
C520	CBH01-102KC (1-162-964-91)	CERAMIC CHIP 1000PF B K 50V	C571	CFF01-104ZD (1-163-038-91)	CERAMIC CHIP 0.1MF F Z 25V
C521	CFD01-105ZE (1-162-638-91)	CERAMIC CHIP 1MF F Z 16V	C572	CBH01-103KD (1-163-021-91)	CERAMIC CHIP 0.01MF B K 50V
C522	FCA35-475MC (1-127-551-81)	ELECT (LEAD) 4.7MF 20% 10V	C573	CFD01-105ZD (1-164-634-91)	CERAMIC CHIP 1MF F Z 16V
C523	K1164-00481 (1-164-004-81)	CERAMIC CHIP 0.1MF B 25V	C574	FCB06-473KF (1-163-809-91)	CERAMIC CHIP 0.047MF B K 25V

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3 Electrical Parts

FF60WIDE PARTS LIST

VS-72

Ref.No.	Part No.	Description	
C601	CCH01-120JC (1-162-916-9 1)	CERAMIC CHIP 12PF CH J	50V
C602	CCH01-120JC (1-162-916-9 1)	CERAMIC CHIP 12PF CH J	50V
C603	CBH01-472KC (1-162-968-9 1)	CERAMIC CHIP 4700PF B K	50V
C604	FCT08-105ME (1-135-147-9 1)	TANTAL. CHIP 1MF 20%	20V
C606	CFH01-103ZC (1-162-974-9 1)	CERAMIC CHIP 0.01MF F Z	50V
C607	FCA09-107MC (1-124-443-7 1)	ELECT CHIP 100MF PHI5 20%	10V
C608	CTB02-335MA (1-135-150-9 1)	TANTAL. CHIP 3.3MF A 20%	6.3V
C609	CFD01-105ZE (1-162-638-9 1)	CERAMIC CHIP 1MF F Z	16V
C610	CFD01-105ZE (1-162-638-9 1)	CERAMIC CHIP 1MF F Z	16V
C611	CBF01-103KC (1-162-970-9 1)	CERAMIC CHIP 0.01MF B K	25V
C612	CBF01-103KC (1-162-970-9 1)	CERAMIC CHIP 0.01MF B K	25V
C613	CBF01-103KC (1-162-970-9 1)	CERAMIC CHIP 0.01MF B K	25V
C614	CBF01-103KC (1-162-970-9 1)	CERAMIC CHIP 0.01MF B K	25V
C615	CBF01-103KC (1-162-970-9 1)	CERAMIC CHIP 0.01MF B K	25V
C616	CBF01-103KC (1-162-970-9 1)	CERAMIC CHIP 0.01MF B K	25V
C618	CFH01-103ZC (1-162-974-9 1)	CERAMIC CHIP 0.01MF F Z	50V
C620	CBF01-103KC (1-162-970-9 1)	CERAMIC CHIP 0.01MF B K	25V
C622	FCT06-106MB (1-135-157-9 1)	TANTAL. CHIP 10MF B 20%	6.3V
C623	FCT06-106MB (1-135-157-9 1)	TANTAL. CHIP 10MF B 20%	6.3V
C624	FCC01-221KH (1-162-960-9 1)	CERAMIC CHIP 220PF B	50V
C661	CFH01-222ZC (1-162-972-9 1)	CERAMIC CHIP 2200PF F Z	50V
C662	CFH01-153ZD (1-163-032-9 1)	CERAMIC CHIP 0.015MF F Z	50V
C663	CFH01-104ZD (1-163-038-9 1)	CERAMIC CHIP 0.1MF F Z	25V
C664	CSH01-471JD (1-163-133-9 1)	CERAMIC CHIP 470PF SL J	50V
C665	CFH01-103ZC (1-162-974-9 1)	CERAMIC CHIP 0.01MF F Z	50V
C666	CFH01-103ZC (1-162-974-9 1)	CERAMIC CHIP 0.01MF F Z	50V
C667	CFH01-224ZE (1-163-081-9 1)	CERAMIC CHIP 0.22MF F Z	25V
C668	CFH01-473ZD (1-163-035-9 1)	CERAMIC CHIP 0.047MF F Z	50V
C681	FCT06-106MB (1-135-157-9 1)	TANTAL. CHIP 10MF B 20%	6.3V
C682	CBF01-103KC (1-162-970-9 1)	CERAMIC CHIP 0.01MF B K	25V
C683	CBH01-471KC (1-162-962-9 1)	CERAMIC CHIP 470PF B K	50V
C690	CBF01-103KC (1-162-970-9 1)	CERAMIC CHIP 0.01MF B K	25V
C691	CBF01-103KC (1-162-970-9 1)	CERAMIC CHIP 0.01MF B K	25V

Ref.No.	Part No.	Description
		----- CONNECTOR -----
CN101	FGB002-0151 (1-566-531-2 1)	CONNECTOR 15P
CN201	FGB001-0101 (1-566-542-4 1)	CONNECTOR 10P
CN202	FGC005-0071 (1-568-342-4 1)	CONNECTOR 7P BOARD TO BOARD
CN203	K1568-33311 (1-568-333-1 1)	CONNECTOR 14P BOARD TO BOARD
CN204	FGC004-0121 (1-568-364-4 1)	CONNECTOR 12P BOARD TO BOARD
CN205	FGA005-0041 (1-565-876-1 1)	CONNECTOR 4P
CN206	FGA005-0041 (1-565-876-1 1)	CONNECTOR 4P
CN501	FGB001-0091 (1-566-541-4 1)	CONNECTOR 9P
CN601	FGB001-0061 (1-566-538-4 1)	CONNECTOR 6P
CN602	FGB001-0141 (1-566-546-4 1)	CONNECTOR 14P
CN603	FGC004-0181 (1-568-367-4 1)	CONNECTOR 18P BOARD TO BOARD
CN607	FGA006-0021 (1-565-527-1 1)	CONNECTOR 2P

		----- DIODE -----
D201	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX
D211	FQDY0002-00 (8-719-118-22)	DIODE 1SS283-T1
D213	QDY20-110QA (8-719-404-37)	DIODE MA141WKTX
D214	QDY20-110QA (8-719-404-37)	DIODE MA141WKTX
D215	QDY10-010RA (8-719-104-22)	DIODE 1SS123-T1
D216	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX
D217	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX
D218	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX
D601	FQDW0006-00 (8-719-404-42)	DIODE MA121-TX
D602	FQDW0006-00 (8-719-404-42)	DIODE MA121-TX
D603	FQDW0006-00 (8-719-404-42)	DIODE MA121-TX
D604	FQDW0006-00 (8-719-404-42)	DIODE MA121-TX
D605	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX
D606	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX
D681	FQDW0001-00 (8-719-404-47)	DIODE MA110-TX

		----- FILTER -----
FL201	K1236-18642 (1-236-186-42)	FILTER, BAND PASS
FL202	K1409-44642 (1-409-446-42)	FILTER, TRAP
FL203	K1577-16211 (1-577-162-11)	FILTER, CERAMIC

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VS-72

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
----- IC -----					
IC101	FQHA0015-00 (8-752-033-84)	IC CXA1202R-T3	L211	LA003-470KF (1-410-389-21)	INDUCTOR CHIP 47UH 10% Q 30
IC102	FQHA0015-00 (8-752-033-84)	IC CXA1202R-T3	L212	LA003-101KF (1-410-393-21)	INDUCTOR CHIP 100UH 10% Q 20
IC201	FQHA0013-00 (8-752-033-85)	IC CXA1201Q-T3	L213	LA003-4R7MF (1-410-377-21)	INDUCTOR CHIP 4.7UH 20% Q 30
IC202	FQHA0119-00 (8-752-332-91)	IC CXL1502M-T5 (CCD COMB FILTER)	L214	LA004-471JG (1-408-797-41)	INDUCTOR CHIP 470UH 5% Q 40
IC203	K8752-03440 (8-752-034-40)	IC CXA1200BQ	L215	K1408-79541 (1-408-795-41)	INDUCTOR CHIP 330UH 5% Q 40
IC204	FQHA0118-00 (8-752-033-74)	IC CXA1203N-T3 (JOG CHROMA PROCESS)	L216	K1410-38841 (1-410-388-41)	INDUCTOR CHIP 39UH 5% Q 30
IC205	FQHD0008-00 (8-759-010-68)	IC MC14094BF-T1	L217	K1408-79541 (1-408-795-41)	INDUCTOR CHIP 330UH 5% Q 40
IC501	FQHA0126-00 (8-759-506-96)	IC CXA8006M-Q-E1 (DRUM MOTOR DRIVE AMP)	L218	LA003-101KF (1-410-393-21)	INDUCTOR CHIP 100UH 10% Q 20
IC502	FQHA0130-00 (8-759-148-06)	IC CXA8010M-E1 (WAVE SHAPER)	L219	K1410-38041 (1-410-380-41)	INDUCTOR CHIP 8.2UH 5% Q 30
IC504	FQHA0132-00 (8-759-823-59)	IC LB1853MS-TE-L (CAPSTAN MOTOR DRIVE)	L220	K1408-79541 (1-408-795-41)	INDUCTOR CHIP 330UH 5% Q 40
IC505	FQHA0014-00 (8-752-035-48)	IC CXA1204Q	L221	FLA013-121J (1-410-655-41)	INDUCTOR CHIP 120UH 5% Q 20
IC601	K8752-81662 (8-752-816-62)	IC CXP80116-690Q (MECA CON SERVO)	L222	K1412-13831 (1-412-138-31)	INDUCTOR CHIP 100UH 10% Q 50
IC602	FQHY0014-00 (8-759-502-36)	IC S-81350HG, 5V REG	L223	K1410-65641 (1-410-656-41)	INDUCTOR CHIP 150UH 5% Q 20
IC603	FQHA0019-00 (8-759-987-67)	IC TL7757CPK-E1	L224	K1410-65741 (1-410-657-41)	INDUCTOR CHIP 180UH 5% Q 20
IC604	FQHA0128-00 (8-759-999-12)	IC LM311DR-E1 (CAP PWM LPF)	L225	K1410-38741 (1-410-387-41)	INDUCTOR CHIP 33UH 5% Q 30
IC605	FQHA0123-00 (8-759-038-73)	IC MPC1710BMR (LD MOTOR DRIVER)	L226	LA003-181KF (1-410-657-21)	INDUCTOR CHIP 180UH 10% Q 20
IC607	FQHA0127-00 (8-759-999-10)	IC LM393DR-E1 (OP AMP)	L227	LA003-100KF (1-410-381-21)	INDUCTOR CHIP 10UH 10% Q 30
IC607	FQHA0127-00 (8-759-999-10)	IC LM393DR-E1 (OP AMP)	L228	LA007-100KA (1-412-029-22)	INDUCTOR CHIP 10UH 10% Q 20
----- COIL -----			L229	LA003-101KF (1-410-393-21)	INDUCTOR CHIP 100UH 10% Q 20
L101	LA007-221KA (1-412-033-22)	INDUCTOR CHIP 220UH 10% Q 20	L230	LA003-101KF (1-410-393-21)	INDUCTOR CHIP 100UH 10% Q 20
L102	LA003-220KF (1-410-385-21)	INDUCTOR CHIP 22UH 10% Q 30	L231	LA003-221KF (1-410-658-21)	INDUCTOR CHIP 220UH 10% Q 20
L103	LA007-221KA (1-412-033-22)	INDUCTOR CHIP 220UH 10% Q 20	L502	LA004-331KG (1-408-795-31)	INDUCTOR CHIP 330UH 10% Q 40
L104	LA003-220KF (1-410-385-21)	INDUCTOR CHIP 22UH 10% Q 30	L504	LA007-101KA (1-412-032-22)	INDUCTOR CHIP 100UH 10% Q 20
L191	LA007-221KA (1-412-033-22)	INDUCTOR CHIP 220UH 10% Q 20	L601	LA007-470KA (1-412-031-22)	INDUCTOR CHIP 47UH 10% Q 20
L192	LA003-100JF (1-410-381-41)	INDUCTOR CHIP 10UH 5% Q 30	----- IC PROTECTOR -----		
L201	LA003-101KF (1-410-393-21)	INDUCTOR CHIP 100UH 10% Q 20	PS601	△ FQY00003-00 (1-532-605-11)	IC PROTECTOR ICP-N10 TS29051820
L202	LA003-101KF (1-410-393-21)	INDUCTOR CHIP 100UH 10% Q 20	PS602	△ FQY00002-01 (1-532-685-11)	IC PROTECTOR ICP-N20
L203	LA007-470KA (1-412-031-22)	INDUCTOR CHIP 47UH 10% Q 20	----- TRANSISTOR -----		
L204	LA007-470KA (1-412-031-22)	INDUCTOR CHIP 47UH 10% Q 20	Q101	FQTC0016-01 (8-729-823-17)	TRANSISTOR 2SC4555-5.6.7TL
L205	K1410-38841 (1-410-388-41)	INDUCTOR CHIP 39UH 5% Q 30	Q102	FQTC0016-01 (8-729-823-17)	TRANSISTOR 2SC4555-5.6.7TL
L207	LA003-101KF (1-410-393-21)	INDUCTOR CHIP 100UH 10% Q 20	Q103	FQTA0004-03 (8-729-117-22)	TRANSISTOR 2SA1611-T1-M6
L208	LA003-330KF (1-410-387-21)	INDUCTOR CHIP 33UH 10% Q 30	Q104	FQTA0004-03 (8-729-117-22)	TRANSISTOR 2SA1611-T1-M6
L209	LA003-560KF (1-410-390-21)	INDUCTOR CHIP 56UH 10% Q30	Q105	FQTC0016-01 (8-729-823-17)	TRANSISTOR 2SC4555-5.6.7TL
L210	LA007-100KA (1-412-029-22)	INDUCTOR CHIP 10UH 10% Q 20	Q106	FQTC0016-01 (8-729-823-17)	TRANSISTOR 2SC4555-5.6.7TL

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF60WIDE PARTS LIST

VS-72

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
Q107	FQTA0004-03 (8-729-117-22)	TRANSISTOR 2SA1611-T1-M6	Q226	FQTB0012-02 (8-729-807-94)	TRANSISTOR 2SB1295-UL5-TB
Q108	FQTA0004-03 (8-729-117-22)	TRANSISTOR 2SA1611-T1-M6	Q227	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q109	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106	Q228	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q161	QTP20-070QA (8-729-905-13)	TRANSISTOR DTA144EU T106	Q229	QTN20-230QA (8-729-905-16)	TRANSISTOR DTC144WU-T106
Q162	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	Q230	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q164	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106	Q231	QTN20-230QA (8-729-905-16)	TRANSISTOR DTC144WU-T106
Q165	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106	Q232	FQTP0001-00 (8-729-140-89)	TRANSISTOR FPIA3M-T1
Q166	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106	Q233	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q167	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106	Q234	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q191	FQTA0004-03 (8-729-117-22)	TRANSISTOR 2SA1611-T1-M6	Q235	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q193	FQTA0002-00 (8-729-102-72)	TRANSISTOR 2SA812-T1M6	Q236	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q201	FQTB0008-06 (8-729-140-73)	TRANSISTOR 2SB798-T1-DLDC	Q237	FQTA0004-03 (8-729-117-22)	TRANSISTOR 2SA1611-T1-M6
Q202	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	Q238	FQTC0002-06 (8-729-142-03)	TRANSISTOR 2SC2223-T1F13F14
Q203	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	Q239	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q204	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106	Q241	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q205	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	Q242	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106
Q206	QTN20-040QA (8-729-907-01)	TRANSISTOR DTC114EU-T106	Q243	QTP20-070QA (8-729-905-13)	TRANSISTOR DTA144EU T106
Q207	FQTP0001-00 (8-729-140-89)	TRANSISTOR FPIA3M-T1	Q244	FQTW0024-01 (8-729-420-13)	TRANSISTOR XN4213 TX
Q208	FQTC0002-06 (8-729-142-03)	TRANSISTOR 2SC2223-T1F13F14	Q245	FQTC0002-06 (8-729-142-03)	TRANSISTOR 2SC2223-T1F13F14
Q209	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106	Q246	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q211	FQTN0003-00 (8-729-905-62)	TRANSISTOR DTC124EU-T106	Q247	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q212	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	Q248	QTP20-070QA (8-729-905-13)	TRANSISTOR DTA144EU T106
Q213	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	Q249	FQTW0024-01 (8-729-420-13)	TRANSISTOR XN4213 TX
Q214	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	Q250	QTP20-070QA (8-729-905-13)	TRANSISTOR DTA144EU T106
Q215	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	Q251	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106
Q216	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	Q252	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q217	FQTC0002-06 (8-729-142-03)	TRANSISTOR 2SC2223-T1F13F14	Q253	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q218	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	Q254	QTP20-070QA (8-729-905-13)	TRANSISTOR DTA144EU T106
Q219	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	Q255	FQTN0001-00 (8-729-921-10)	TRANSISTOR DTC144TU-T106
Q220	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	Q256	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106
Q221	QTP20-070QA (8-729-905-13)	TRANSISTOR DTA144EU T106	Q258	FQTN0001-00 (8-729-921-10)	TRANSISTOR DTC144TU-T106
Q222	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	Q259	QTP20-100QA (8-729-921-59)	TRANSISTOR DTA144TU-T106
Q223	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R	Q260	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q224	QTP20-070QA (8-729-905-13)	TRANSISTOR DTA144EU T106	Q261	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q225	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R	Q270	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R

When indicating parts by reference number, please include the board name.

VS-72

Ref.No.	Part No.	Description
Q272	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q501	FQTW0001-00 (8-729-920-46)	TRANSISTOR IMT1US-T110
Q502	FQTW0022-01 (8-729-822-95)	TRANSISTOR FC102-TL
Q503	FQTW0022-01 (8-729-822-95)	TRANSISTOR FC102-TL
Q541	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q542	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q543	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q571	FQTW0001-00 (8-729-920-46)	TRANSISTOR IMT1US-T110
Q572	FQTW0001-00 (8-729-920-46)	TRANSISTOR IMT1US-T110
Q573	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q601	FQTW0009-01 (8-729-403-26)	TRANSISTOR XN4210-TX
Q602	FQTW0009-01 (8-729-403-26)	TRANSISTOR XN4210-TX
Q603	FQTW0009-01 (8-729-403-26)	TRANSISTOR XN4210-TX
Q604	FQTW0009-01 (8-729-403-26)	TRANSISTOR XN4210-TX
Q606	FQTW0009-01 (8-729-403-26)	TRANSISTOR XN4210-TX
Q607	FQTW0009-01 (8-729-403-26)	TRANSISTOR XN4210-TX
Q608	FQTW0009-01 (8-729-403-26)	TRANSISTOR XN4210-TX
Q609	FQTW0009-01 (8-729-403-26)	TRANSISTOR XN4210-TX
Q610	FQTW0009-01 (8-729-403-26)	TRANSISTOR XN4210-TX
Q611	FQTW0024-01 (8-729-420-13)	TRANSISTOR XN4213 TX
Q612	QTP20-070QA (8-729-905-13)	TRANSISTOR DTA144EU T106
Q613	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106
Q614	FQTW0028-01 (8-729-904-00)	TRANSISTOR FMS1FE-T148
Q615	FQTW0005-00 (8-729-903-83)	TRANSISTOR FMW2-T-148
Q616	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q617	FQTW0028-01 (8-729-904-00)	TRANSISTOR FMS1FE-T148
Q618	FQTW0028-01 (8-729-904-00)	TRANSISTOR FMS1FE-T148
Q619	QTN20-040QA (8-729-907-01)	TRANSISTOR DTC114EU-T106
Q620	FQTW0025-01 (8-729-421-91)	TRANSISTOR XN4113 TX
Q621	FQTW0024-01 (8-729-420-13)	TRANSISTOR XN4213 TX
Q622	FQTW0026-01 (8-729-422-15)	TRANSISTOR XN4111-TX
Q623	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q624	FQTW0026-01 (8-729-422-15)	TRANSISTOR XN4111-TX
Q643	FQTW0009-01 (8-729-403-26)	TRANSISTOR XN4210-TX
Q644	QTP20-070QA (8-729-905-13)	TRANSISTOR DTA144EU T106

Ref.No.	Part No.	Description
Q645	QTN20-190QA (8-729-905-19)	TRANSISTOR DTC144EU T106
Q661	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q662	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q663	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q664	QTA20-760QA (8-729-905-27)	TRANSISTOR 2SA1576T106R
Q665	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q681	QTC40-813QA (8-729-905-38)	TRANSISTOR 2SC4081 T106R
Q682	FQTB0011-06 (8-729-822-85)	TRANSISTOR 2SB1202 FAST-TL
Q683	FQTW0006-00 (8-729-902-94)	TRANSISTOR FMG4-T-148
Q684	FQTW0028-01 (8-729-904-00)	TRANSISTOR FMS1FE-T148
----- RESISTOR -----		
R101	FRE005-273J (1-216-838-91)	METAL GLAZE 27K 5% 1/16W
R102	FRE005-332J (1-216-827-91)	METAL GLAZE 3.3K 5% 1/16W
R103	FRE005-393J (1-216-840-91)	METAL GLAZE 39K 5% 1/16W
R104	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
R105	FRE005-000J (1-216-864-91)	METAL GLAZE 0 5% 1/16W
R106	FRE005-333J (1-216-839-91)	METAL GLAZE 33K 5% 1/16W
R107	FRE005-332J (1-216-827-91)	METAL GLAZE 3.3K 5% 1/16W
R108	FRE005-393J (1-216-840-91)	METAL GLAZE 39K 5% 1/16W
R109	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
R110	FRE005-223J (1-216-837-91)	METAL GLAZE 22K 5% 1/16W
R111	FRE005-273J (1-216-838-91)	METAL GLAZE 27K 5% 1/16W
R112	FRE005-332J (1-216-827-91)	METAL GLAZE 3.3K 5% 1/16W
R113	FRE005-393J (1-216-840-91)	METAL GLAZE 39K 5% 1/16W
R114	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
R115	FRE005-223J (1-216-837-91)	METAL GLAZE 22K 5% 1/16W
R116	FRE005-333J (1-216-839-91)	METAL GLAZE 33K 5% 1/16W
R117	FRE005-332J (1-216-827-91)	METAL GLAZE 3.3K 5% 1/16W
R118	FRE005-393J (1-216-840-91)	METAL GLAZE 39K 5% 1/16W
R119	FRE005-473J (1-216-841-91)	METAL GLAZE 47K 5% 1/16W
R120	FRE005-223J (1-216-837-91)	METAL GLAZE 22K 5% 1/16W
R121	FRE005-223J (1-216-837-91)	METAL GLAZE 22K 5% 1/16W
R122	FRE005-102J (1-216-821-91)	METAL GLAZE 1K 5% 1/16W
R123	FRE005-102J (1-216-821-91)	METAL GLAZE 1K 5% 1/16W
R124	FRE005-102J (1-216-821-91)	METAL GLAZE 1K 5% 1/16W

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3 Electrical Parts

FF60WIDE PARTS LIST

VS-72

Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
R125	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R179	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W
R126	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R191	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W
R127	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W	R192	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W
R128	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R193	FRE005-331J (1-216-815-91)	METAL GLAZE	330	5%	1/16W
R129	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R194	FRE005-471J (1-216-817-91)	METAL GLAZE	470	5%	1/16W
R130	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W	R197	FRE005-220J (1-216-801-91)	METAL GLAZE	22	5%	1/16W
R131	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W	R198	FRE005-561J (1-216-818-91)	METAL GLAZE	560	5%	1/16W
R132	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W	R201	FRE005-390J (1-216-804-91)	METAL GLAZE	39	5%	1/16W
R133	FRE003-000J (1-216-295-91)	METAL GLAZE	0	5%	1/10W	R202	FRE005-390J (1-216-804-91)	METAL GLAZE	39	5%	1/16W
R134	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W	R203	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R135	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W	R204	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R136	FRE003-000J (1-216-295-91)	METAL GLAZE	0	5%	1/10W	R205	FRE005-3R3J (1-216-791-91)	METAL GLAZE	3.3	5%	1/16W
R139	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W	R206	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W
R140	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R207	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K	5%	1/16W
R141	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R208	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W
R142	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R209	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W
R143	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R210	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R144	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R211	K1216-02291 (1-216-022-91)	METAL GLAZE	75	5%	1/10W
R161	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W	R214	FRE005-392J (1-216-828-91)	METAL GLAZE	3.9K	5%	1/16W
R162	FRE005-822J (1-216-832-91)	METAL GLAZE	8.2K	5%	1/16W	R215	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R163	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R216	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R164	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W	R217	RMB01-104DD (1-216-699-91)	METAL GLAZE	100K	0.5%	1/10W
R165	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W	R218	FRE005-393J (1-216-840-91)	METAL GLAZE	39K	5%	1/16W
R166	FRE005-822J (1-216-832-91)	METAL GLAZE	8.2K	5%	1/16W	R219	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R167	FRE005-683J (1-216-843-91)	METAL GLAZE	68K	5%	1/16W	R220	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W
R168	FRE005-392J (1-216-828-91)	METAL GLAZE	3.9K	5%	1/16W	R221	FRE005-393J (1-216-840-91)	METAL GLAZE	39K	5%	1/16W
R170	FRE005-154J (1-216-847-91)	METAL GLAZE	150K	5%	1/16W	R222	FRE005-271J (1-216-814-91)	METAL GLAZE	270	5%	1/16W
R171	FRE005-154J (1-216-847-91)	METAL GLAZE	150K	5%	1/16W	R223	FRE005-153J (1-216-835-91)	METAL GLAZE	15K	5%	1/16W
R172	FRE005-154J (1-216-847-91)	METAL GLAZE	150K	5%	1/16W	R224	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R173	FRE005-392J (1-216-828-91)	METAL GLAZE	3.9K	5%	1/16W	R225	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W
R174	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R226	FRE005-331J (1-216-815-91)	METAL GLAZE	330	5%	1/16W
R175	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R227	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W
R176	FRE005-3R3J (1-216-791-91)	METAL GLAZE	3.3	5%	1/16W	R228	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W
R177	FRE005-3R3J (1-216-791-91)	METAL GLAZE	3.3	5%	1/16W	R229	FRE005-121J (1-216-810-91)	METAL GLAZE	120	5%	1/16W
R178	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W	R230	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W

When indicating parts by reference number, please include the board name.

VS-72

Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
R231	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W	R269	RMB01-102DD (1-216-651-91)	METAL GLAZE	1K	0.5%	1/10W
R232	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K	5%	1/16W	R270	RMB01-471DD (1-216-643-91)	METAL GLAZE	470	0.5%	1/10
R233	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R271	FRE005-561J (1-216-818-91)	METAL GLAZE	560	5%	1/16W
R234	FRE005-151J (1-216-811-91)	METAL GLAZE	150	5%	1/16W	R272	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R235	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W	R273	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W
R236	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W	R274	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W
R237	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R275	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R238	FRE005-471J (1-216-817-91)	METAL GLAZE	470	5%	1/16W	R276	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R239	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R277	FRE005-121J (1-216-810-91)	METAL GLAZE	120	5%	1/16W
R240	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R278	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W
R243	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W	R279	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R244	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R280	FRE005-681J (1-216-819-91)	METAL GLAZE	680	5%	1/16W
R245	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W	R281	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K	5%	1/16W
R246	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R282	FRE005-272J (1-216-826-91)	METAL GLAZE	2.7K	5%	1/10W
R247	FRE005-680J (1-216-807-91)	METAL GLAZE	68	5%	1/16W	R283	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R249	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R284	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K	5%	1/16W
R250	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W	R285	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W
R251	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W	R286	RMB01-332DD (1-216-663-91)	METAL GLAZE	3.3K	0.5%	1/10W
R252	FRE005-562J (1-216-830-91)	METAL GLAZE	5.6K	5%	1/16W	R287	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R253	FRE005-681J (1-216-819-91)	METAL GLAZE	680	5%	1/16W	R288	FRE005-273J (1-216-838-91)	METAL GLAZE	27K	5%	1/16W
R254	FRE005-392J (1-216-828-91)	METAL GLAZE	3.9K	5%	1/16W	R289	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R255	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W	R290	FRE005-683J (1-216-843-91)	METAL GLAZE	68K	5%	1/16W
R256	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R291	FRE005-684J (1-216-855-91)	METAL GLAZE	680K	5%	1/16W
R257	FRE005-474J (1-216-853-91)	METAL GLAZE	470K	5%	1/16W	R293	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K	5%	1/16W
R258	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R294	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W
R259	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W	R295	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W
R260	FRE005-000J (1-216-864-91)	METAL GLAZE	0	5%	1/16W	R296	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R261	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R297	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W
R262	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R298	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K	5%	1/16W
R263	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R300	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R264	FRE005-221J (1-216-813-91)	METAL GLAZE	220	5%	1/16W	R301	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W
R265	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W	R302	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R266	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	R303	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W
R267	FRE005-272J (1-216-826-91)	METAL GLAZE	2.7K	5%	1/10W	R304	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W
R268	FRE005-822J (1-216-832-91)	METAL GLAZE	8.2K	5%	1/16W	R305	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W

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3 Electrical Parts

FF60WIDE PARTS LIST

VS-72

Ref.No.	Part No.	Description					Ref.No.	Part No.	Description				
R306	FRE005-221J (1-216-813-91)	METAL GLAZE	220	5%	1/16W		R354	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W	
R311	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W		R355	FRE005-471J (1-216-817-91)	METAL GLAZE	470	5%	1/16W	
R315	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W		R356	FRE005-820J (1-216-808-91)	METAL GLAZE	82	5%	1/16W	
R316	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W		R357	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K	5%	1/16W	
R317	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W		R358	FRE005-182J (1-216-824-91)	METAL GLAZE	1.8K	5%	1/16W	
R318	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W		R359	FRE005-562J (1-216-830-91)	METAL GLAZE	5.6K	5%	1/16W	
R319	FRE005-561J (1-216-818-91)	METAL GLAZE	560	5%	1/16W		R360	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	
R320	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W		R361	FRE005-183J (1-216-836-91)	METAL GLAZE	18K	5%	1/16W	
R321	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W		R362	FRE005-183J (1-216-836-91)	METAL GLAZE	18K	5%	1/16W	
R322	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W		R363	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	
R325	FRE005-681J (1-216-819-91)	METAL GLAZE	680	5%	1/16W		R364	FRE005-470J (1-216-805-91)	METAL GLAZE	47	5%	1/16W	
R326	FRE005-221J (1-216-813-91)	METAL GLAZE	220	5%	1/16W		R365	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K	5%	1/16W	
R327	FRE005-681J (1-216-819-91)	METAL GLAZE	680	5%	1/16W		R369	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W	
R328	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K	5%	1/16W		R377	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W	
R329	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W		R378	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	
R330	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W		R379	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W	
R331	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W		R380	RMB01-104DD (1-216-699-91)	METAL GLAZE	100K	0.5%	1/10W	
R332	FRE005-561J (1-216-818-91)	METAL GLAZE	560	5%	1/16W		R381	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W	
R333	FRE005-101J (1-216-809-91)	METAL GLAZE	100	5%	1/16W		R382	FRE005-822J (1-216-832-91)	METAL GLAZE	8.2K	5%	1/16W	
R334	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W		R390	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	
R335	FRE005-272J (1-216-826-91)	METAL GLAZE	2.7K	5%	1/10W		R391	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W	
R336	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W		R393	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W	
R337	FRE005-561J (1-216-818-91)	METAL GLAZE	560	5%	1/16W		R394	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	
R338	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W		R396	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W	
R339	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W		R501	FRE001-473F (1-216-336-91)	METAL GLAZE	47K	1%	1/10W	
R341	FRE005-562J (1-216-830-91)	METAL GLAZE	5.6K	5%	1/16W		R502	FRE001-473F (1-216-336-91)	METAL GLAZE	47K	1%	1/10W	
R342	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W		R503	FRE001-184F (1-216-870-91)	METAL GLAZE	180K	1%	1/10W	
R343	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W		R504	RMB01-333DD (1-216-687-91)	METAL GLAZE	33K	0.5%	1/10W	
R344	FRE005-561J (1-216-818-91)	METAL GLAZE	560	5%	1/16W		R505	RMB01-122DD (1-216-653-91)	METAL GLAZE	1.2K	0.5%	1/10W	
R345	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W		R506	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	
R346	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W		R507	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W	
R347	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W		R509	FRE005-393J (1-216-840-91)	METAL GLAZE	39K	5%	1/16W	
R348	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W		R510	FRE005-683J (1-216-843-91)	METAL GLAZE	68K	5%	1/16W	
R349	FRE005-152J (1-216-823-91)	METAL GLAZE	1.5K	5%	1/16W		R511	FRE005-391J (1-216-816-91)	METAL GLAZE	390	5%	1/16W	
R352	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W		R512	FRE010-1R0J (1-217-671-91)	METAL GLAZE	1	5%	1/10W	

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VS-72

Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
R513	FRE010-1R0J (1-217-671-91)	METAL GLAZE	1	5%	1/10W	R571	FRE005-393J (1-216-840-91)	METAL GLAZE	39K	5%	1/16W
R514	FRE010-1R0J (1-217-671-91)	METAL GLAZE	1	5%	1/10W	R572	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W
R515	FRE010-1R0J (1-217-671-91)	METAL GLAZE	1	5%	1/10W	R573	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R520	FRE005-331J (1-216-815-91)	METAL GLAZE	330	5%	1/16W	R574	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W
R521	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W	R575	FRE005-393J (1-216-840-91)	METAL GLAZE	39K	5%	1/16W
R522	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W	R576	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W
R523	FRE004-000J (1-216-296-91)	METAL GLAZE	0	5%	1/8W	R577	FRE005-681J (1-216-819-91)	METAL GLAZE	680	5%	1/16W
R526	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R580	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W
R527	FRE005-153J (1-216-835-91)	METAL GLAZE	15K	5%	1/16W	R590	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R528	FRE005-2R2J (1-216-789-91)	METAL GLAZE	2.2	5%	1/16W	R591	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R529	FRE005-2R2J (1-216-789-91)	METAL GLAZE	2.2	5%	1/16W	R592	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R530	FRE005-2R2J (1-216-789-91)	METAL GLAZE	2.2	5%	1/16W	R593	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W
R531	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K	5%	1/16W	R594	FRE005-273J (1-216-838-91)	METAL GLAZE	27K	5%	1/16W
R532	FRE005-823J (1-216-844-91)	METAL GLAZE	820	5%	1/16W	R595	FRE005-182J (1-216-824-91)	METAL GLAZE	1.8K	5%	1/16W
R533	FRE005-183J (1-216-836-91)	METAL GLAZE	18K	5%	1/16W	R597	FRE005-154J (1-216-847-91)	METAL GLAZE	150K	5%	1/16W
R534	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W	R598	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W
R535	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W	R600	FRE003-000J (1-216-295-91)	METAL GLAZE	0	5%	1/10W
R536	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W	R602	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R537	FRE005-392J (1-216-828-91)	METAL GLAZE	3.9K	5%	1/16W	R604	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W
R543	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W	R605	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W
R544	FRE005-271J (1-216-814-91)	METAL GLAZE	270	5%	1/16W	R610	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W
R545	FRE005-181J (1-216-812-91)	METAL GLAZE	180	5%	1/16W	R611	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W
R548	FRE005-822J (1-216-832-91)	METAL GLAZE	8.2K	5%	1/16W	R612	FRE005-394J (1-216-852-91)	METAL GLAZE	390K	5%	1/16W
R549	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	R613	FRE005-153J (1-216-835-91)	METAL GLAZE	15K	5%	1/16W
R550	FRE005-183J (1-216-836-91)	METAL GLAZE	18K	5%	1/16W	R614	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W
R551	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W	R615	FRE005-273J (1-216-838-91)	METAL GLAZE	27K	5%	1/16W
R552	FRE005-393J (1-216-840-91)	METAL GLAZE	39K	5%	1/16W	R616	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W
R553	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W	R617	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W
R554	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W	R618	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W
R555	FRE005-223J (1-216-837-91)	METAL GLAZE	22K	5%	1/16W	R619	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W
R556	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W	R620	FRE005-823J (1-216-844-91)	METAL GLAZE	820	5%	1/16W
R557	FRE005-822J (1-216-832-91)	METAL GLAZE	8.2K	5%	1/16W	R621	FRE005-222J (1-216-825-91)	METAL GLAZE	2.2K	5%	1/16W
R558	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W	R622	FRE005-823J (1-216-844-91)	METAL GLAZE	820	5%	1/16W
R559	FRE005-472J (1-216-829-91)	METAL GLAZE	4.7K	5%	1/16W	R625	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W
R560	FRE005-393J (1-216-840-91)	METAL GLAZE	39K	5%	1/16W	R626	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W

When indicating parts by reference number, please include the board name.

3 Electrical Parts

FF60WIDE PARTS LIST

VS-72

Ref.No.	Part No.	Description					Ref.No.	Part No.	Description				
R627	FRE005-471J (1-216-817-91)	METAL GLAZE	470	5%	1/16W		R689	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K	5%	1/16W	
R628	FRE005-474J (1-216-853-91)	METAL GLAZE	470K	5%	1/16W		R690	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W	
R633	FRE004-121J (1-216-176-91)	METAL GLAZE	120	5%	1/8W		R691	FRE005-153J (1-216-835-91)	METAL GLAZE	15K	5%	1/16W	
R634	FRE004-101J (1-216-174-91)	METAL GLAZE	100	5%	1/8W		R695	FRE005-122J (1-216-822-91)	METAL GLAZE	1.2K	5%	1/16W	
R635	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W		R696	FRE010-1R0J (1-217-671-91)	METAL GLAZE	1	5%	1/10W	
R645	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W		R697	FRE010-1R0J (1-217-671-91)	METAL GLAZE	1	5%	1/10W	
R646	FRE005-104J (1-216-845-91)	METAL GLAZE	100K	5%	1/16W		R698	FRE005-332J (1-216-827-91)	METAL GLAZE	3.3K	5%	1/16W	
R647	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W		R699	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W	
R648	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W		----- NETWORK RESISTOR -----						
R661	FRE005-333J (1-216-839-91)	METAL GLAZE	33K	5%	1/16W		RB101	FRW001-472J (1-236-420-91)	NETWORK, RES, CHIP	4.7K	5%		
R662	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W		RB102	FRW001-472J (1-236-420-91)	NETWORK, RES, CHIP	4.7K	5%		
R663	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W		RB107	FRW001-472J (1-236-420-91)	NETWORK, RES, CHIP	4.7K	5%		
R664	FRE005-101J (1-216-809-91)	METAL GLAZE	100	5%	1/16W		RB108	FRW001-472J (1-236-420-91)	NETWORK, RES, CHIP	4.7K	5%		
R665	FRE005-121J (1-216-810-91)	METAL GLAZE	120	5%	1/16W		RB201	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP	10K	5%		
R666	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W		RB204	FRW001-471J (1-236-408-91)	NETWORK, RES, CHIP	470	5%		
R667	FRE005-683J (1-216-843-91)	METAL GLAZE	68K	5%	1/16W		RB206	FRW001-561J (1-236-409-91)	NETWORK, RES, CHIP	560	5%		
R668	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W		RB207	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP	100K	5%		
R669	FRE005-273J (1-216-838-91)	METAL GLAZE	27K	5%	1/16W		RB208	FRW001-102J (1-236-412-91)	NETWORK, RES, CHIP	1K	5%		
R670	FRE005-182J (1-216-824-91)	METAL GLAZE	1.8K	5%	1/16W		RB209	FRW001-472J (1-236-420-91)	NETWORK, RES, CHIP	4.7K	5%		
R671	FRE005-273J (1-216-838-91)	METAL GLAZE	27K	5%	1/16W		RB502	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP	10K	5%		
R672	FRE005-564J (1-216-854-91)	METAL GLAZE	560K	5%	1/16W		RB541	FRW001-471J (1-236-408-91)	NETWORK, RES, CHIP	470	5%		
R673	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W		RB542	FRW001-332J (1-236-418-91)	NETWORK, RES, CHIP	3.3K	5%		
R674	FRE005-334J (1-216-851-91)	METAL GLAZE	330K	5%	1/16W		RB543	FRW001-332J (1-236-418-91)	NETWORK, RES, CHIP	3.3K	5%		
R675	FRE005-105J (1-216-857-91)	METAL GLAZE	1M	5%	1/16W		RB601	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP	100K	5%		
R676	FRE005-225J (1-216-861-91)	METAL GLAZE	2.2M	5%	1/16W		RB602	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP	100K	5%		
R678	FRE005-154J (1-216-847-91)	METAL GLAZE	150K	5%	1/16W		RB603	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP	100K	5%		
R679	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W		RB604	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP	100K	5%		
R681	FRE005-103J (1-216-833-91)	METAL GLAZE	10K	5%	1/16W		RB605	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP	100K	5%		
R682	FRE005-821J (1-216-820-91)	METAL GLAZE	820	5%	1/16W		RB606	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP	100K	5%		
R683	FRE004-681J (1-216-194-91)	METAL GLAZE	680	5%	1/8W		RB607	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP	100K	5%		
R684	FRE004-681J (1-216-194-91)	METAL GLAZE	680	5%	1/8W		RB608	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP	100K	5%		
R685	FRE004-681J (1-216-194-91)	METAL GLAZE	680	5%	1/8W		RB609	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP	100K	5%		
R686	FRE005-102J (1-216-821-91)	METAL GLAZE	1K	5%	1/16W		RB610	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP	10K	5%		
R687	FRE005-682J (1-216-831-91)	METAL GLAZE	6.8K	5%	1/16W		RB611	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP	10K	5%		
R688	FRE005-473J (1-216-841-91)	METAL GLAZE	47K	5%	1/16W								

When indicating parts by reference number, please include the board name.

VS-72 **MISC.**

Ref.No.	Part No.	Description		
RB612	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP	10K	5%
RB614	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP	10K	5%
RB615	FRW001-104J (1-236-436-91)	NETWORK, RES, CHIP	100K	5%
RB616	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP	10K	5%
RB617	FRW001-393J (1-236-431-91)	NETWORK, RES, CHIP	39K	5%
RB618	FRW001-473J (1-236-432-91)	NETWORK, RES, CHIP	47K	5%
RB619	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP	10K	5%
RB620	FRW001-471J (1-236-408-91)	NETWORK, RES, CHIP	470	5%
RB621	FRW001-471J (1-236-408-91)	NETWORK, RES, CHIP	470	5%
RB661	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP	10K	5%
RB662	FRW001-334J (1-236-442-91)	NETWORK, RES, CHIP	330K	5%
RB682	FRW001-103J (1-236-424-91)	NETWORK, RES, CHIP	10K	5%
----- VARIABLE RESISTOR -----				
RV101	FRU009-472N (1-238-855-21)	RES. ADJ	4.7K B	
RV102	FRU009-472N (1-238-855-21)	RES. ADJ	4.7K B	
RV103	FRU009-472N (1-238-855-21)	RES. ADJ	4.7K B	
RV104	FRU009-472N (1-238-855-21)	RES. ADJ	4.7K B	
RV111	FRU009-473N (1-238-858-21)	RES. ADJ	47K B	
RV112	FRU009-473N (1-238-858-21)	RES. ADJ	47K B	
RV113	FRU009-473N (1-238-858-21)	RES. ADJ	47K B	
RV114	FRU009-473N (1-238-858-21)	RES. ADJ	47K B	
RV201	FRU009-473N (1-238-858-21)	RES. ADJ	47K B	
RV202	FRU009-102N (1-238-853-21)	RES. ADJ	1K B	
RV203	FRU009-222N (1-238-854-21)	RES. ADJ	2.2K B	
RV204	FRU009-472N (1-238-855-21)	RES. ADJ	4.7K B	
RV205	FRU009-222N (1-238-854-21)	RES. ADJ	2.2K B	
RV206	FRU009-473N (1-238-858-21)	RES. ADJ	47K B	
RV207	FRU009-103N (1-238-856-21)	RES. ADJ	10K B	
RV208	FRU009-471N (1-238-852-21)	RES. ADJ	470 B	
RV209	FRU009-102N (1-238-853-21)	RES. ADJ	1K B	
RV210	FRU009-471N (1-238-852-21)	RES. ADJ	470 B	
RV212	FRU009-472N (1-238-855-21)	RES. ADJ	4.7K B	
RV213	FRU009-103N (1-238-856-21)	RES. ADJ	10K B	
RV502	FRU009-474N (1-238-861-21)	RES. ADJ	470K B	
RV602	FRU009-473N (1-238-858-21)	RES. ADJ	47K B	

Ref.No.	Part No.	Description	
----- BOARD -----			
W502	KA7070-881A (A-7070-881-A)	FP-182 BOARD, COMPLETE	
W604	K1630-59211 (1-630-592-11)	FP-184 FLEXIBLE BOARD	
W605	KA7071-200A (A-7071-200-A)	FP-330 BOARD, COMPLETE	
----- CRYSTAL VIBRATOR -----			
X201	K1577-11721 (1-577-117-21)	OSCILLATOR, CRYSTAL	
X501	K1578-70921 (1-578-709-21)	OSCILLATOR, CRYSTAL	
X601	K1579-07061 (1-579-070-61)	OSCILLATOR, CRYSTAL	

----- MISCELLANEOUS -----			
	KA7030-210A (A-7030-210-A)	CCD ASSY	
	▲ FZ00179-100 (1-452-565-11)	CRT ASSY 2502-05	
	K1946-13211 (1-946-132-11)	HARNESS (CB-54)	
	K1946-13411 (1-946-134-11)	HARNESS (CD-104)	
	K1946-13312 (1-946-133-12)	HARNESS (CE-51)	
	J1948-45211	HARNESS (HM-50)	
	J1948-45411	HARNESS (HW-50)	
	K1948-45111	HARNESS (HW-51)	
	K1944-05611 (1-944-056-11)	HARNESS (MC-16)	
	K1580-03112 (1-580-031-12)	JACK ASSY, PIN	
	FZ00027-100	LITHIUM BATTERY	CR2025
	K1542-12611 (1-542-126-11)	MICROPHONE UNIT	
	FZ00346-100 (1-571-435-11)	SWITCH 1-1-1	
	JA7091-586A	SWITCH ASSY	
	K1466-59121	SWITCH BLOCK, OPERATION (FK-0)	
	K1466-38321	SWITCH BLOCK, OPERATION (CF-0)	
	J1572-71821	SWITCH, SLIDE	
	K1537-29731 (1-537-297-31)	TERMINAL BOARD, BATTERY	
IC901	FQHA0133-00	IC (CCD)	ICX045AK-6
PS901	▲ K1532-84121 (1-532-841-21)	IC PROTECTOR 1.600A	
PS902	▲ K1532-84121 (1-532-841-21)	IC PROTECTOR 1.600A	
PS930	▲ K1532-84121 (1-532-841-21)	IC PROTECTOR 1.600A	

The components identified by mark ▲ or dotted line with mark ▲ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

4 INDEX

FF60WIDE PARTS LIST

Index for Packing and Accessories and Mechanical Parts

This INDEX is intended to find the corresponding Ref. No. keying the Part No.

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
1-452-565-11	B25	3-728-148-01	F19	A-7049-190-A	F10	X-3727-906-1	F14
1-528-203-11	14	3-728-148-11	G18	A-7051-855-A	C31	X-3727-914-4	E34
1-532-778-21	A16	3-728-149-01	F18	A-7052-388-A	C07	X-3727-915-1	F02
1-537-297-21	A15	3-728-154-01	G04	A-7052-389-A	C11	X-3727-916-1	G05
1-540-019-21	B24	3-728-190-01	G01	A-7061-238-A	E11	X-3727-920-1	D05
1-541-607-11	F04	3-728-200-01	E15	A-7062-288-A	C04	X-3727-922-2	D14
1-542-126-11	A17	3-728-206-01	E16	A-7062-393-B	B23	X-3727-923-2	E18
1-547-408-11	C24	3-728-208-01	G06	A-7068-189-A	C17	X-3727-924-2	G08
1-571-647-11	E31	3-728-212-01	G16	A-7071-175-A	C18	X-3727-926-1	E06
1-572-611-11	D23	3-728-213-01	G07	A-7071-190-A	A20	X-3727-930-1	G02
1-580-031-12	C06	3-728-226-01	E23	A-7071-199-A	C19	X-3727-931-1	G03
1-627-722-11	E02	3-728-227-01	D17	A-7071-200-A	C12	X-3727-942-1	G12
1-630-591-11	C14	3-728-228-03	G10	BB00462-100	18	X-3727-949-1	F06
1-630-592-11	C13	3-728-231-01	F22	BB00623-100	13	X-3727-951-2	E05
3-315-384-31	G19	3-728-244-01	E24	BU00007-402	07	X-3727-952-1	E07
3-315-414-31	E36	3-728-266-01	A39	FZ00006-200	06	X-3727-993-1	E29
3-321-394-01	E28	3-728-267-01	A38	J1547-46921	C29	X-3728-005-1	E04
3-325-290-21	F03	3-728-277-01	D12	J1572-71821	B31	X-3739-807-1	D01
3-331-007-11	D13	3-728-278-01	D15	J3728-61901	04	X-3739-809-1	D16
3-331-007-11	G15	3-732-064-01	F23	J3753-18141	11	X-3739-814-1	D02
3-578-221-03	A07	3-732-068-01	E03	J3753-18151	10	X-3739-815-1	D06
3-578-254-00	E30	3-732-077-01	E13	J3942-02501	A12	X-3747-701-1	B06
3-669-480-12	A04	3-732-087-31	F27	J3942-41601	B15	X-3747-706-2	C01
3-674-402-01	B09	3-736-323-01	C15	J3942-42002	A37	X-3749-001-3	E19
3-701-436-21	B10	3-736-343-01	A06	J3942-42201	B36	X-3940-087-3	E12
3-701-439-11	E33	3-736-364-01	A09	J3942-42601	A35	X-3940-618-1	F01
3-701-625-01	09	3-736-396-02	C02	J3942-43901	B37	X-3940-619-1	F09
3-703-816-51	F26	3-736-808-03	D19	J3942-44601	B29		
3-704-197-21	C10	3-736-841-02	C08	J3942-44701	A24		
3-704-281-01	16	3-736-894-01	A25	J3942-45503	A32		
3-713-786-51	A21	3-739-807-01	E01	J3942-46301	A27		
3-713-786-51	B02	3-739-808-01	D09	J3942-46501	A18		
3-713-786-51	B32	3-739-872-01	D03	J3942-46602	B26		
3-713-786-51	C05	3-739-873-01	D07	J3942-46801	B35		
3-713-790-31	B28	3-740-546-01	B19	J3942-47301	A29		
3-719-381-01	A11	3-743-631-01	G22	J3942-47401	A30		
3-719-381-01	B17	3-747-109-01	B14	J3942-47901	A02		
3-719-381-01	C03	3-747-110-01	B12	J3942-48001	A33		
3-719-601-01	A19	3-747-111-01	B11	J3942-48102	A28		
3-719-601-01	A23	3-747-112-01	B13	J3942-48203	A31		
3-719-601-01	B05	3-747-151-11	C27	J3943-38301	08		
3-719-601-01	B18	3-747-157-01	B16	J3943-38401	17		
3-719-601-01	C23	3-747-704-01	A36	JA7081-664A	B04		
3-727-807-01	F12	3-747-708-03	A05	JA7081-665A	A01		
3-727-809-01	F11	3-747-709-01	A03	JX394-056-01	A26		
3-727-902-11	A14	3-747-710-01	A10	JX3940-5582	B22		
3-727-929-01	G13	3-747-712-01	B34	JX3940-6161	B21		
3-727-939-01	E32	3-747-713-01	B07	JX3940-7781	A13		
3-727-946-01	D22	3-747-718-01	B08	JX3940-7791	A34		
3-727-954-01	D21	3-747-722-02	A08	K1466-38321	B03		
3-727-957-01	D20	3-747-751-02	C09	K1466-59121	B01		
3-728-015-01	G09	3-749-945-01	C26	K1528-11321	12		
3-728-071-01	E21	3-940-267-02	C22	K3747-74525	B27		
3-728-091-01	E35	4-310-379-01	A40	K3764-68942	15		
3-728-091-01	G20	8-752-604-51	C25	K3943-38201	19		
3-728-103-11	D18	8-835-329-01	F08	KA6767-724A	03		
3-728-103-11	E26	A-7040-148-A	E25	KA6767-829C	01		
3-728-108-01	F21	A-7040-150-A	E08	KA6768-212B	05		
3-728-108-21	F13	A-7040-151-A	E09	KA6768-392A	02		
3-728-109-01	G17	A-7040-152-A	G21	KA7019-330A	B20		
3-728-119-01	F17	A-7040-153-A	G11	KA7030-258A	C30		
3-728-121-01	E14	A-7040-158-C	E17	KA7052-727A	A22		
3-728-124-01	E20	A-7040-164-A	D11	KA7052-729A	B30		
3-728-126-01	D10	A-7040-171-C	F07	KA7052-828A	C21		
3-728-126-01	E27	A-7040-203-A	F25	KA7062-831A	C16		
3-728-126-01	F24	A-7040-209-A	F05	KA7062-832A	C20		
3-728-144-01	G14	A-7040-211-J	E22	KA7071-445A	C28		
3-728-145-01	D04	A-7040-240-A	E10	KA7071-446A	B33		
3-728-146-01	D08	A-7048-202-A	F20	X-3727-903-1	F15		
3-728-148-01	D24	A-7049-189-A	F10	X-3727-904-1	F16		